UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 6, 1998

Wayne Nordwall, Area Director
Bureau of Indian Affairs
P. O. Box 10
Phoenix, AZ 85001

Dear Mr. Nordwall:

As you are aware, on December 30, 1997 the Bureau of Indian Affairs, the U.S. Environmental Protection Agency (EPA), and the Duck Valley Shoshone-Paiute Tribe had a conference call to discuss two major tribal concerns regarding the BIA's soil and ground water clean-up project on the Reservation. The first concern was related to several technical issues regarding the workplan. We were able to discuss all these issues and come to agreement on them. Attached are notes which summarize the action items and decisions agreed upon.

The second major area of concern for the Tribe was the timeliness of the project. On June 29, 1995, EPA issued BIA the emergency order which required the clean-up; it has been over two and a half years since the issuance of the order. Given this concern, a schedule was developed during the conference call which lays out the approximate timeframes for the remaining steps of the project. If the schedule is not met, the Tribe has requested EPA to use its enforcement authority to assist in expediting the process. As stated in the emergency order, EPA has civil penalty authority up to $5,000 per day. Therefore, it is critical for BIA to make every effort to support this project and ensure that the work proceeds according to the schedule attached.

Should you have any questions, please feel free to call me at (415) 744-1860 or Laura Bose, Chief of the Ground Water Office at (415) 744-1835.

Sincerely,

for Alexis Strauss, Acting Director
Water Division

enclosures

cc: James Paiva, Duck Valley Shoshone-Paiute Tribe
Renee Dufault, Duck Valley Shoshone-Paiute Tribe
John Krause, Bureau of Indian Affairs

January 6, 1998

Wayne Nordwall, Area Director
Bureau of Indian Affairs
P. O. Box 10
Phoenix, AZ 85001

Dear Mr. Nordwall:

As you are aware, on December 30, 1997 the Bureau of Indian Affairs, the U.S. Environmental Protection Agency (EPA), and the Duck Valley Shoshone-Paiute Tribe had a conference call to discuss two major tribal concerns regarding the BIA's soil and ground water clean-up project on the Reservation. The first concern was related to several technical issues regarding the workplan. We were able to discuss all these issues and come to agreement on them. Attached are notes which summarize the action items and decisions agreed upon.

The second major area of concern for the Tribe was the timeliness of the project. On June 29, 1995, EPA issued BIA the emergency order which required the clean-up; it has been over two and a half years since the issuance of the order. Given this concern, a schedule was developed during the conference call which lays out the approximate timeframes for the remaining steps of the project. If the schedule is not met, the Tribe has requested EPA to use its enforcement authority to assist in expediting the process. As stated in the emergency order, EPA has civil penalty authority up to $5,000 per day. Therefore, it is critical for BIA to make every effort to support this project and ensure that the work proceeds according to the schedule attached.

Should you have any questions, please feel free to call me at (415) 744-1860 or Laura Bose, Chief of the Ground Water Office at (415) 744-1835.

Sincerely,

Alexis Strauss, Acting Director
Water Division

enclosures

SYMBOL	WTR 9	WTR-9	WTR-1			
SURNAME	Wong	LTBose	Schulz for AS			
DATE	6 JAN 98	6 Jan 98	1-6-98			

U.S. EPA CONCURRENCES OFFICIAL FILE COPY

December 31, 1997

TO: Renee Dufault
FAX: 702-757-2219
John Krause
FAX: 602-379-3833

FROM: Alisa Wong
PHONE: 415-744-1842
FAX: 415-744-1873

I finished drafting the notes to the Dec. 30 conference call. **Please review the notes for accuracy** and let me know if I need to make any changes by Monday, January 5 at 12:00 p.m. I am in the process of typing the cover letter now and hope to finish it by Monday. Thanks and Happy New Year!

Background: The following is a summary of the action items and agreements made by the Shoshone-Paiute Tribe, BIA and EPA concerning the BIA soil and ground water clean-up project on the Duck Valley Reservation.

Ground Water Contamination

- BIA will address the ground water clean-up in Phase II. The Tribe understands that the ground water clean-up will be addressed in a subsequent workplan.

Water Monitoring

- The Tribe was previously forwarded funds to conduct water level monitoring for three drinking water wells. The Tribe no longer wishes to be responsible for this task. Therefore, the funds that were previously forwarded to the Tribe for the water level monitoring will be used to conduct the soil sampling.

Chronology for Sampling

- BIA has agreed to conduct soil sampling previous to comencement of work plan activities.

Soil Removal\Locating the Heating Fuel Line

- BIA has agreed that once petroleum contaminated soils are excavated, soils will be immediately taken off the Reservation and clean soils will be used to backfill areas which were excavated.
- BIA will only remove petroleum contaminated soils if there are sufficient funds to have the soils taken off the Reservation.
- BIA will initiate soil sampling around the areas of the heating fuel pipeline to assist in prioritization which segments of the pipeline will be removed first.

Heating Fuel Pipeline

- The Tribe supports the removal of the heating fuel pipeline.
- To support further characterization of the subsurface contamination, BIA will fund soil sampling of the area around the pipeline. With the information that is attained from the soil sampling, BIA will prioritize the sections of the pipeline for removal.
- Renee Dufault has agreed to assist BIA with the scope of work together for the soil sampling and locating the heating fuel line.

Other

- The asbestos removal work will be separated out into a different contract.
- BIA has agreed to make all items in the workplan related to the Road Shop a line item in the workplan. Due to the discovery of asbestos in the Road Shop, no work can be conducted in the Road Shop until the asbestos is abated. Separating out the activities associated with the Road Shop will prevent any unexpected delays in the asbestos removal to delay the workplan.

Schedule

February 15, 1998	BIA will complete all the necessary changes to the workplan and respond to all the questions raised by bidders during the previous solicitation.
April 15, 1998	It will take approximately 60 days for the BIA contracts office to prepare the workplan for solicitation. John Krause will verify the amount of time with the BIA contracts office.
May 15, 1998	The contract will be open for 30 days for prospective contractors to bid on the project.
Early June	Contractor will be in place and work will begin.

AGENDA

December 30, 1997
1:00-3:00 PST

Topic	Who	Outcome	Time
Introductions	All	-	10 minutes
Tribal comments (from November 24 letter to EPA) * ground water contamination * water monitoring * locating the heating fuel line * chronology for sampling * geoprobe soil sampling * soil removal * heating fuel line removal	All	Discuss all tribal concerns	1 hour 10 minutes
Status of workplan * Status of BIA funding * Timeframes	BIA	Update on current status and develop an acceptable timeline	25 minutes
Follow-up and Next Steps * Improving coordination between the Tribe, BIA, and EPA	EPA	-	15 minutes

Conference Call Participants

Renee Dufault
Environmental Health Specialist
Duck Valley Reservation
(702) 757-3211

John Krause
Area Hazardous Waste Coordinator
Bureau of Indian Affairs, Phoenix Area Office
(602) 379-6750

Donna Bradley
Land Operations Officer
Bureau of Indian Affairs, Eastern Nevada Agency
(702) 738-0590

Laura Bose
Chief
EPA, Ground Water Office
(415) 744-1835

Alisa Wong
Environmental Specialist
EPA, Ground Water Office
(415) 744-1842

Joaquin Cruz
Environmental Engineer
EPA, Ground Water Office
(415) 744-1839

Conference Call Notes
December 30, 1997

Participants:

James Paiva
Chairman
Duck Valley Reservation
(702) 757-3161

Dennis Smith
Vice Chairman
Duck Valley Reservation
(702) 757-3211

David Jones
Councilman
Duck Valley Reservation
(702) 757-3211

Carol Jones
Assistant Tribal Administrator
Duck Valley Reservation
(702)757-3161

Marcie Phillips
Tribal Recycling Specialist
Duck Valley Reservation
(702) 757-3211

Renee Dufault
Environmental Health Specialist
Duck Valley Reservation
(702) 757-3211

Wayne Nordwall
Area Director
Bureau of Indian Affairs, Phoenix Area Office
(602) 379-6750

John Krause
Area Hazardous Waste Coordinator
Bureau of Indian Affairs, Phoenix Area Office
(602) 379-6750

Laura Bose
Chief
EPA, Ground Water Office
(415) 744-1835

Alisa Wong
Environmental Specialist
EPA, Ground Water Office
(415) 744-1842

Joaquin Cruz
Environmental Engineer
EPA, Ground Water Office
(415) 744-1839

Background: The following is a summary of the action items and agreements made by the Shoshone-Paiute Tribe, BIA and EPA concerning the BIA soil and ground water clean-up project on the Duck Valley Reservation.

Ground Water Contamination

- BIA will address the ground water clean-up in a subsequent effort. The Tribe understood and accepted this approach.

Water Monitoring

- The Tribe was previously forwarded funds to conduct water level monitoring for three drinking water wells. The Tribe no longer wishes to be responsible for this task. Therefore, the funds that were previously forwarded to the Tribe for the water level monitoring will be used to conduct the soil sampling.

Chronology for Sampling

- BIA has agreed to conduct soil sampling along the heating fuel line prior to commencement of workplan activities in a separate work order.

Soil Removal\Locating the Heating Fuel Line

- BIA has agreed that once petroleum contaminated soils are excavated, these soils will be immediately taken off the Reservation and clean fill will be used to backfill areas which were excavated. Contaminated soils will be temporarily stockpiled in an agreed upon location until enough soil is excavated to constitute a full truck load. Should it be necessary to stockpile soil for more than 2 days, BIA will construct a temporary fence around the soil stockpiling area.
- BIA will only excavate petroleum contaminated soils if there are sufficient funds to have the soils taken off the Reservation.
- BIA will initiate soil sampling around the areas of the heating fuel pipeline to assist in prioritizing which segments of the pipeline will be removed first.

Heating Fuel Pipeline

- The Tribe supports the removal of the heating fuel pipeline.
- To support further characterization of the subsurface contamination, BIA will fund soil sampling of the area around the pipeline. With the information that is attained from the soil sampling, BIA will prioritize the sections of the pipeline for removal.

Other

- Soil Sampling--Renee Dufault has agreed to assist BIA with completing the scope of work and overseeing the contractor for the soil sampling and locating the heating fuel line. The Tribe will use monies which BIA has already allocated to them and any additional costs will be reimbursed by the BIA. Also included in the scope of work will be soil sampling of the storage tank located in the NE corner of the BIA Road Shop and mapping of the heating fuel line after it has been determined.

- The asbestos removal work will be separated out into a different contract.

- BIA has agreed to make all items in the workplan related to the Road Shop a line item in the workplan. Due to the discovery of asbestos in the Road Shop, no work can be conducted in the Road Shop until the asbestos is abated. Separating out the activities associated with the Road Shop will prevent any unexpected delays in the asbestos removal to delay the workplan.

BIA Schedule

February 15, 1998	BIA will complete all the necessary changes to the workplan and respond to all the questions raised by bidders during the previous solicitation.
April 15, 1998	It will take approximately 60 days for the BIA contracts office to prepare the workplan for solicitation. John Krause will verify the amount of time with the BIA contracts office.
May 15, 1998	The contract will be open for 30 days for prospective contractors to bid on the project.
Early June	Contractor will be in place and work will begin.

December 24, 1997

TO: Renee Dufault
FAX: 702-757-2219

FROM: Alisa Wong
PHONE: 415-744-1842
FAX: 415-744-1873

For the December 30 conference call regarding the Bureau of Indian Affairs' (BIA) investigation and clean-up of contamination, can you please forward me the names, titles, and phone numbers of all the people who will be participating in the conference call from the Tribe and the phone number where I can reach you for the call. I am putting together a list of the participants and will fax it back to you previous to the conference call so the attendees have the information.

Also, can you please have the following information available during the conference call in the event that they are referenced during the discussion: 1) November 24 letter from the Tribe to EPA and 2) BIA workplan and associated maps.

Thanks!

FAX to BIA

Dec 22, 1997

Baquin's comments in response to Nov 24 letter from Tribe

1. Pages not collated properly: No response warranted.

2. a) Collection of soil samples for site characterization:

The release of petroleum hydrocarbons from the fuel distribution lines occurred at a minimum of 10 years ago. As the fuel propagated downgradient from the release, it floated on top of the water table thus becoming entrapped in the saturated areas of the soil. Since the water table fluctuates from season to season, we may miss this entrapped soil contamination if the water table is low, so soil sampling is necessary to fully delineated the contamination sources. In order to screen for contamination soil samples, a photoionization detector can be used to detect likely contaminated samples (note: a PID is discussed in the field and safety monitoring section on page 12).

b) The use of geoprobe sampling should be conducted first instead of ninth:

This would depend on which activity has the highest priority: removal of known contaminated soil, closure of class V system, removal of fuel distribution system, site characterization or closure of the other numerous sites. I will address this in the more general comment section.

3. Removal of the fuel distribution system is not warranted at this time since it is no longer in use and does not represent a health hazard:

I am in the process of obtaining from the UST section their guidance titled "How to Comply with UST Regulations on Native American Lands" in order to address this issue. From an engineering point, the Tribe has a valid point; once left-over product is removed from the lines, these fuel distribution lines would not be a contamination source threat. However, what's to say that 50 years down the road the land use in the area changes, or the Tribe wants add sewer service, or water distribution lines need to be installed or whatever the future holds: it makes practical planning sense to remove the fuel distribution lines now instead dealing with these potential scenarios down the line (no pun intended).

4. Determine the exact location of the fuel distribution system:

Yes, I agree with the Tribe that something as simple as a magnetometer can be used to determine exact locations. This should be done as part of an overall site characterization effort. However, this concern is minor in nature; it would havenot altered the overall intent of the workplan.

5. Sample along the fuel distribution system every 10 feet:

I do not agree with their statement of "there is reason to believe that leakage has occurred at each joint where the sections of pipe are joined together". Are they referring to the welding or puddy used to join the piping? In an ideal world, we would want them to sample at every jointed area. Since we have an estimated 2,000 feet of distribution lines, some 200 soil samples would have to be collected and analyzed--that's a lot of money (i.e. for 8015M analysis, this would cost $50 a soil sample for TPH-d; so for 200 samples @$50 a pop, that comes to $10,000 just for soil samples!).

Since BIA has proposed to dig up and remove the fuel distribution system lines, on-site visual inspection and the use of PID equipment could be used to determine areas of gross soil contamination beneath the pipe. Through this methodology, we would be able to effectively identify and characterize those areas of concerns instead of opting for a shotgun approach.

6. a) Site characterization needs to be accomplished before a treatment plan is chosen:
I will address this in the general comments section.

b) The decision to remove contaminated soils is premature; *in-situ* bioremediation needs to be considered:

Excavation of the petroleum stained soils is the preferred method for removal of contamination sources. Depending on soil contamination levels, *in-situ* bioremediation can be an acceptable level of passive remediation; however, the Tribe should be aware that long-term levels of dissolved constitutents of petroleum hydrocarbons will persist in the surficial water-bearing zone.

7. The Tribe was not informed that it was responsible for groundwater quality analyses:
This is something BIA should clarify with the Tribe; no response warranted.

8. The workplan does not adequately address groundwater and/or soil remediation activities that is discovered during site characterization:

It is my understanding the workplan proposes that all discovered petroleum contaminated soils were to be removed and bioremediated on-site. This is an acceptable proposed corrective action. Since the Tribe has changed its mind about allowing on-site remediation to proceed, an alternative soil remediation method can be found.

Remediation of contaminated groundwaters is not addressed in this workplan. It is my understanding that BIA will use this work to propose a corrective action plan which would address this issue. If we are to insist on some sort of active groundwater remediation, this would require a separate workplan since the cost of this would be extremely high. Some active groundwater remediation plans are as follows: soil/vapor extraction, pump and treat, solubilization treatment, soil washing, as well as a host of other techniques.

General Comments:

1. The workplan was extremely well written for the most part except for the initial couple of pages. An analysis of the workplan's purpose and scope details the following: site characterization (1-3); active remediation plus site characterization (4-5); closure activities (6); active remediation (7); site characterization plus removal of USTs (8); site characterization (9-10); active remediation (11); and development of corrective action plan (12). There seems to be a lack of general focus: what are the major objectives; how do we prioritize these objectives?

The development of a group of major objectives could help us develop a more logical approach in dealing with all the work needed at Duck Valley. I have listed what I consider to the major workplan objective; please let me know if I am way off-base with this approach or objectives:

Task #1: Active remediation of known contamination sources. This would include the stained petroleum hydrocarbon location of 1988 (in front of the Tribal Maintenance Yard); 60 foot soil section directly east of the 7.5 and 30 horsepower wells (1995); and the other 60 foot soil section near the old power plant (1995).

Task #2: Investigation and removal of the fuel line distribution system.

Task #3: Investigation of the BIA roads maintenance building and closure of the class V system.

Task #4: Investigate the soil and groundwater in and around the 7.5 and 30 horsepower wells.

Task #5: Investigation of the school yard UST area.

Task #6: Investigation of the Old Power Plant area.

Task #7: Investigation of the AST near the jail.

Task #8: Investigation of the 1500 gallon UST in building 305.

Task #9: Development of a corrective action plan to deal with tasks #2-#8.

Brief History

June 1995	EPA issues emergency order (under Safe Drinking Water Act section 1431) to Bureau of Indian Affairs
July 1995	BIA contracts with USBR to complete the work plan and quality assurance plan under the conditions of the emergency order.
Sept 1995	EPA receives work plan #1 and responds with comments. Reviewers include ground water offices (technical review--John Hillenbrand), QAMS, and UST.
winter 1995	Furlough hits BIA and EPA--delays work plan development.
Feb 1996	EPA receives work plan #2 and responds with comments. Contract with USBR ends. BIA has only two staff people who manage all tribal projects, Duck Valley work plan development slows down due to lack of staff support. BIA contracts to have petroleum contaminated soils (excavated during water line removal and replacement by IHS) removed from the Reservation.
March 1996	Hazardous levels of dinoseb (herbicide) are found in storage shed near drinking water well. BIA works with Ground Water Offices and Superfund Emergency Response Unit to clean-up the soil contamination and investigate for ground water contamination. This delayed work plan development for several months.
July 1996	EPA receives work plan #3 and responds with comments.
Aug 1996	Bill Beck, environmental health specialist for the tribe, resigns. BIA contracts to have geophysical logging completed for three drinking water wells.
Oct 1996	EPA receives final BIA work plan. A conditional verbal approval is given; a complete approval will be given when the contractor who will conduct the work, submits standard operating procedures to EPA for review and approval by QAMS.
Feb 1997	Renee Dufault, from EPA Headquarters, takes a detail to the Reservation.
Aug 1997	Work plan put out to bid however extensions and clarifications requested by several contractors force bidding period to be extended.

Faxed Dec 19 1997

December 19, 1997

TO: Renee Dufault
FAX: 702-757-2219

FROM: Alisa Wong
Phone: 415-744-1842
Fax: 415-744-1873

I did not know how else to send you a message so I decided to fax you this. I wanted to talk to you about the conference call. I understand from a message you left on my voice mail a couple of days ago that members of the tribal council will be attending the conference call regarding the BIA soil and ground water clean-up. Laura Bose (my supervisor) and I talked and we think it is great that the council wants to participate. Since the December 30 conference call is going to discuss the more technical issues associated with the workplan, would you\the Council like to schedule a separate meeting to discuss the BIA clean-up so they don't have to sit through the technical discussion? Or if the Council would like to participate in the technical discussion you can ignore this message.

I will be out of the office today (Friday), in the afternoon Monday and in the morning Tuesday, but you can always leave a message on my voice mail. Thanks!

→ 3 month project completion

Joaquin Cruz

12/18/97 04:31 PM

To: Alisa Wong@EPA
cc: Laura Bose@EPA
Subject: Duck Valley Response

Howdy,

I have finished reviewing the case file, phase I/II workplan and Tribal comments and have divided up my response into two areas: point-by-point specific to the Tribal concerns and general overall workplan comments.

Point-by-point:

1. Pages not collated properly: No response warranted.

2. a) Collection of soil samples for site characterization:
The release of petroleum hydrocarbons from the fuel distribution lines occurred at a minimum of 10 years ago. As the fuel propagated downgradient from the release, it floated on top of the water table thus becoming entrapped in the saturated areas of the soil. Since the water table fluctuates from season to season, we may miss this entrapped soil contamination if the water table is low, so soil sampling is necessary to fully delineated the contamination sources. In order to screen for contamination soil samples, a photoionization detector can be used to detect likely contaminated samples (note: a PID is discussed in the field and safety monitoring section on page 12).

add soil sampling

b) The use of geoprobe sampling should be conducted first instead of ninth:
This would depend on which activity has the highest priority: removal of known contaminated soil, closure of class V system, removal of fuel distribution system, site characterization or closure of the other numerous sites. I will address this in the more general comment section.

* priorize → public health ; petroleum cont. soils (EPA, BIA)
* what are the Tribes priorities

3. Removal of the fuel distribution system is not warranted at this time since it is no longer in use and does not represent a health hazard:
I am in the process of obtaining from the UST section their guidance titled "How to Comply with UST Regulations on Native American Lands" in order to address this issue. From an engineering point, the Tribe has a valid point; once left-over product is removed from the lines, these fuel distribution lines would not be a contamination source threat. However, what's to say that 50 years down the road the land use in the area changes, or the Tribe wants add sewer service, or water distribution lines need to be installed or whatever the future holds: it makes practical planning sense to remove the fuel distribution lines now instead dealing with these potential scenarios down the line (no pun intended).

Not a UST

- easier to access contamination
- future excavation or construction considerations

4. Determine the exact location of the fuel distribution system:
Yes, I agree with the Tribe that something as simple as a magnetometer can be used to determine exact locations. This should be done as part of an overall site characterization effort. However, this concern is minor in nature; it would have not altered the overall intent of the workplan.

magnetometer

> If heating line is removed— this is unnecessary.

5. Sample along the fuel distribution system every 10 feet:
I do not agree with their statement of "there is reason to believe that leakage has

occurred at each joint where the sections of pipe are joined together". Are they referring to the welding or puddy used to join the piping? In an ideal world, we would want them to sample at every jointed area. Since we have an estimated 2,000 feet of distribution lines, some 200 soil samples would have to be collected and analyzed--that's a lot of money (i.e. for 8015M analysis, this would cost $50 a soil sample for TPH-d; so for 200 samples @$50 a pop, that comes to $10,000 just for soil samples!).

Since BIA has proposed to dig up and remove the fuel distribution system lines, on-site visual inspection and the use of PID equipment could be used to determine areas of gross soil contamination beneath the pipe. Through this methodology, we would be able to effectively identify and characterize those areas of concerns instead of opting for a shotgun approach.

6. a) Site characterization needs to be accomplished before a treatment plan is chosen: I will address this in the general comments section. → Soil removal parallel to excavation

b) The decision to remove contaminated soils is premature; *in-situ* bioremediation needs to be considered:

Excavation of the petroleum stained soils is the preferred method for removal of contamination sources. Depending on soil contamination levels, *in-situ* bioremediation can be an acceptable level of passive remediation; however, the Tribe should be aware that long-term levels of dissolved constitutents of petroleum hydrocarbons will persist in the surficial water-bearing zone. depends on priority

Best option is to remove, but trace levels with exist for 10 15yrs Is the tribe willing to live with this?

7. The Tribe was not informed that it was responsible for groundwater quality analyses: This is something BIA should clarify with the Tribe; no response warranted.

8. The workplan does not adequately address groundwater and/or soil remediation activities that is discovered during site characterization:

It is my understanding the workplan proposes that all discovered petroleum contaminated soils were to be removed and bioremediated on-site. This is an acceptable proposed corrective action. Since the Tribe has changed its mind about allowing on-site remediation to proceed, an alternative soil remediation method can be found.

Remediation of contaminated groundwaters is not addressed in this workplan. It is my understanding that BIA will use this work to propose a corrective action plan which would address this issue. If we are to insist on some sort of active groundwater remediation, this would require a separate workplan since the cost of this would be extremely high. Some active groundwater remediation plans are as follows: soil/vapor extraction, pump and treat, solubilization treatment, soil washing, as well as a host of other techniques.

Hundreds of thousands to remediate go Separate workplan.

General Comments:

1. The workplan was extremely well written for the most part except for the initial couple of pages. An analysis of the workplan's purpose and scope details the following: site characterization (1-3); active remediation plus site characterization (4-5); closure activities (6); active remediation (7); site characterization plus removal of USTs (8); site characterization (9-10); active remediation (11); and development of corrective action plan (12). There seems to be a lack of general focus: what are the major objectives; how do we prioritize these objectives?

After speaking with Laura, I think the approach she suggested is a good one. The development of a group of major objectives could help us develop a more logical approach in dealing with all the work needed at Duck Valley. I have listed what I consider to the major workplan objective; please let me know if I am way off-base with this approach or objectives:

P1 -- Chronological order, Joaquin will propose new order

Task #1: Active remediation of known contamination sources. This would include the stained petroleum hydrocarbon location of 1988 (in front of the Tribal Maintenance Yard); 60 foot soil section directly east of the 7.5 and 30 horsepower wells (1995); and the other 60 foot soil section near the old power plant (1995).

Task #2: Investigation and removal of the fuel line distribution system.

Task #3: Investigation of the BIA roads maintenance building and closure of the class V system.

Task #4: Investigate the soil and groundwater in and around the 7.5 and 30 horsepower wells.

Task #5: Investigation of the school yard UST area.

Task #6: Investigation of the Old Power Plant area.

Task #7: Investigation of the AST near the jail.

Task #8: Investigation of the 1500 gallon UST in building 305.

Task #9: Development of a corrective action plan to deal with tasks #2-#8.

The three of us need to sit down and talk about this. I should be in all next week (22-24) and I am extremely flexible in my schedule. I hope this info helps out.
Joaquin

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 16, 1997

Renee Dufault
Shoshone-Paiute Tribe
Duck Valley Reservation
P. O. Box 219
Owyhee, Nevada 89832

Dear Ms. Dufault:

As a follow-up to our December 5, 1997 letter to the Tribe regarding the clean-up of soil and ground water by the Bureau of Indian Affairs (BIA), a conference call has been scheduled between the Tribe, BIA, and EPA. The purpose of the conference call is to update the Tribe on the activities that have occurred and discuss the issues described in the Tribe's November 24, 1997 letter to EPA, as well as any other concerns. The conference call is December 30, 1997 from 1:00-3:00 PST. An agenda is enclosed for your reference, please review it to ensure that it addresses all the issues you would like to discuss.

Should you have any questions or should any scheduling conflicts arise, please call me at (415) 744-1842.

Sincerely,

Alisa Wong
Ground Water Office

cc: Herman Atkins, Duck Valley Reservation
John Krause, Bureau of Indian Affairs

C:\GROUND\DUCKVAL\LTR-AGEN.WPD

AGENDA

December 30, 1997
1:00-3:00 PST

Topic	Who	Outcome	Time
Introductions	All	-	10 minutes
Workplan update * Status of workplan * Status of BIA funding * Questions	BIA	Update on current status	25 minutes
Tribal comments * Discuss each concern in November 24 letter to EPA	All	Discuss all tribal concerns	1 hour 10 minutes
Follow-up and Next Steps * Improving coordination between the Tribe, BIA, and EPA	EPA	-	15 minutes

Renee:

The new proposed time for the conference call between the Tribe, BIA, and EPA is Dec. 30 between 1-3 PST (which I think is 2-4 Owyhee time). Let me know if this is a good time for the Tribe, if not select a time that would be suitable between Dec 29-31. Also, I have drafted an agenda. Please review the agenda and make sure it addresses all the specific concerns the Tribe has. Should you have any changes or addition, please forward them to me by Dec. 17 COB.

DRAFT AGENDA

December 30, 1997
1:00-3:00 PST

Topic	Who	Outcome	Time
Introductions	All	-	10 minutes
Workplan update * Status of workplan * Status of BIA funding * Questions	BIA	Update on current status	25 minutes
Tribal comments * Discuss each concern in November 24 letter to EPA * Improving coordination between the Tribe, BIA, and EPA	All	Discuss all tribal concerns	1 hour 10 minutes
Follow-up and Next Steps	EPA	-	15 minutes

FAX 12/12/97

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ► 1

To Alisa Wong	From John Krause
Dept./Agency EPA SDWA	Phone #
Fax # 415-744-1873	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

December 5, 1997

James Paiva, Chairman
Shoshone-Paiute Tribes
Duck Valley Reservation
P. O. Box 219
Owyhee, Nevada 89832

Dear Chairman Paiva:

We have received your letter dated November 24, 1997 and share your concerns on the timeliness of the Bureau of Indian Affairs (BIA) clean-up of the contaminated soil and ground water in the Owyhee community. The priorities for the BIA and EPA, since the discovery of the ground water contamination, have been to address serious threats to the community's public health first. This is why the dinoseb (herbicide) removal and clean-up, the petroleum contaminated soil removal, and the sampling and closure of two heavily contaminated drinking water wells took priority over the immediate development of the workplan to clean-up the soil and ground water. We are confident that, barring any significant changes to the workplan, work will begin in the Spring of 1998.

We regret any miscommunication or confusion that might have occurred regarding the Tribe's participation in the development of the workplan. BIA and EPA had been soliciting tribal participation from the beginning and worked closely with Bill Beck to address the comments he provided. However, given the additional concerns raised, I have asked Alisa Wong to coordinate with Renee Dufault and John Krause of BIA to address those concerns.

You can be assured clean-up of the contamination is a high priority and we will work with BIA to expedite this effort. Should you have any further questions, please contact Laura Bose at (415) 744-1835 or Alisa Wong (415) 744-1842.

Sincerely,

Alexis Strauss, Acting Director
Water Division

cc: John Krause, Bureau of Indian Affairs
Renee Dufault, Duck Valley Reservation

C:\GROUND\DUCKVAL\RESPONSE.LTR

December 5, 1997

James Paiva, Chairman
Shoshone-Paiute Tribes
Duck Valley Reservation
P. O. Box 219
Owyhee, Nevada 89832

Dear Chairman Paiva:

We have received your letter dated November 24, 1997 and share your concerns on the timeliness of the Bureau of Indian Affairs (BIA) clean-up of the contaminated soil and ground water in the Owyhee community. The priorities for the BIA and EPA, since the discovery of the ground water contamination, have been to address serious threats to the community's public health first. This is why the dinoseb (herbicide) removal and clean-up, the petroleum contaminated soil removal, and the sampling and closure of two heavily contaminated drinking water wells took priority over the immediate development of the workplan to clean-up the soil and ground water. We are confident that, barring any significant changes to the workplan, work will begin in the Spring of 1998.

We regret any miscommunication or confusion that might have occurred regarding the Tribe's participation in the development of the workplan. BIA and EPA had been soliciting tribal participation from the beginning and worked closely with Bill Beck to address the comments he provided. However, given the additional concerns raised, I have asked Alisa Wong to coordinate with Renee Dufault and John Krause of BIA to address those concerns.

You can be assured clean-up of the contamination is a high priority and we will work with BIA to expedite this effort. Should you have any further questions, please contact Laura Bose at (415) 744-1835 or Alisa Wong (415) 744-1842.

SYMBOL	WTR9	W/				WTR-9
SURNAME	Wong	Shaw				L. Scott
DATE	4 Dec 1997	7 Dec 97				12/9/97

U.S. EPA CONCURRENCES OFFICIAL FILE COPY

December 1, 1997

TO: Laura Bose

FROM: Alisa Wong

RE: Duck Valley

Brief History

June 1995	EPA issues emergency order (under Safe Drinking Water Act section 1431) to Bureau of Indian Affairs
July 1995	BIA contracts with USBR to complete the work plan and quality assurance plan under the conditions of the emergency order.
Sept 1995	EPA receives work plan #1 and responds with comments. Reviewers include ground water offices (technical review--John Hillenbrand), QAMS, and UST.
winter 1995	Furlough hits BIA and EPA--delays work plan development.
Feb 1996	EPA receives work plan #2 and responds with comments. Contract with USBR ends. BIA has only two staff people who manage all tribal projects, Duck Valley work plan development slows down due to lack of staff support. BIA contracts to have petroleum contaminated soils (excavated during water line removal and replacement by IHS) removed from the Reservation.
March 1996	Hazardous levels of dinoseb (herbicide) are found in storage shed near drinking water well. BIA works with Ground Water Offices and Superfund Emergency Response Unit to clean-up the soil contamination and investigate for ground water contamination. This delayed work plan development for several months.
July 1996	EPA receives work plan #3 and responds with comments.
Aug 1996	Bill Beck, environmental health specialist for the tribe, resigns. BIA contracts to have geophysical logging completed for three drinking water wells.
Oct 1996	EPA receives final BIA work plan. A conditional verbal approval is given; a complete approval will be given when the contractor who will conduct the work, submits standard operating procedures to EPA for review and approval by QAMS.

Feb 1997 Renee Dufault, from EPA Headquarters, takes a detail to the Reservation.

Aug 1997 Work plan put out to bid however extensions and clarifications requested by several contractors force bidding period to be extended.

Response to Nov 24 letter from Duck Valley Shoshone-Paiute Tribe

Both EPA and BIA have been actively involving the tribe with the development of the work plan. A tribal representative has been invited to all conference calls and meetings, copies of all correspondence and work plan drafts have been sent to the tribe, tribal comments were incorporated into the work plan, training was sent up for a tribal representative to help oversee the work, and the tribe was given the opportunity to conduct the all the activities in the work plan themselves (with BIA funding) but declined. Confusion could have resulted due to the fact that all of the work plan decisions were made during the time when Bill Beck was the environmental specialist for the tribe. Renee Dufault did not begin working on the project until EPA and BIA were close to finalizing the work plan.

Although the work plan has not officially been approved, EPA has conditionally approved all the parts of the work plan which have gone through the review process. Final approval will be given when the contractor's standard operating producers for sample collection are submitted and approved by QAMS.

* Technical review was completed by EPA staff (John Hillenbrand). These changes can be made, however will not result further delays to the progress of the work plan due to the need for: 1)revisions by BIA, 2) re-review by EPA, and 3) reinitiating the contracting process with the new work plan.

* Excavation of the heating oil pipeline was requested by the Tribe. No formal documentation exist, but this arrangement was negotiated between BIA and Bill Beck of the Tribe.

* BIA had previously negotiated with the Tribe that tribal personnel would take water level measurement which would be supported by additional funding by BIA ($17,000).

* The current work plan only addresses phase I of the clean-up. When phase I has completed characterizing of the contamination, phase II will address all remaining work that needs to be conducted.

Funding: It is estimated that phase I will cost $270,000. BIA has given the Duck Valley project first priority in terms of funding. One hundred thousand ($100,000) dollars in carry-over funds from FY 97 has been reserved for Duck Valley and BIA will request an additional $170,000 to support the complete project.

C:\GROUND\DUCKVAL\CHRONOLO.WPD

-spoke w/ BIA, never got a copy ; Herman Atkins (Tribal Administrator)
no frustrations,

We share your ② concerns on the timliness of this action, assure you job will get done!
immediate health /environmental
resolution of workplans concerns will be addressed offices
① coordination

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 5, 1997

James Paiva, Chairman
Shoshone-Paiute Tribes
Duck Valley Reservation
P. O. Box 219
Owyhee, Nevada 89832

Dear Chairman Paiva:

This letter is in follow-up to the December 30, 1997 conference call with the Bureau of Indian Affairs, EPA, you, and the other members and representatives of the Shoshone Paiute Tribe. Enclosed are notes from the conference call which outline the action items and agreements made during the call. Also enclosed is the letter which was sent to the BIA.

We hope that the conference call has eased your concerns about the BIA's soil and ground water remediation project on the Reservation. Should you have any further questions, please contact me at (415) 744-2125 or Laura Bose at (415) 744-1835.

Sincerely,

for Alexis Strauss, Acting Director
Water Division

enclosures

cc: John Krause, Bureau of Indian Affairs
Renee Dufault, Duck Valley Reservation

C:\GROUND\DUCKVAL\CCFOLLOW.UP

January 5, 1997

James Paiva, Chairman
Shoshone-Paiute Tribes
Duck Valley Reservation
P. O. Box 219
Owyhee, Nevada 89832

Dear Chairman Paiva:

This letter is in follow-up to the December 30, 1997 conference call with the Bureau of Indian Affairs, EPA, you, and the other members and representatives of the Shoshone Paiute Tribe. Enclosed are notes from the conference call which outline the action items and agreements made during the call. Also enclosed is the letter which was sent to the BIA.

We hope that the conference call has eased your concerns about the BIA's soil and ground water remediation project on the Reservation. Should you have any further questions, please contact me at (415) 744-2125 or Laura Bose at (415) 744-1835.

Sincerely,

Alexis Strauss, Acting Director
Water Division

enclosures

cc: John Krause, Bureau of Indian Affairs
Renee Dufault, Duck Valley Reservation

C:\GROUND\DUCKVAL\CCFOLLOW.UP

SYMBOL	WTR-9		WTR-1			
SURNAME	WONG		Schultz for	AS		
DATE	16 Jan 98		1-4-98			

U.S. EPA CONCURRENCES OFFICIAL FILE COPY

January 5, 1997

TO: Renee Dufault
FAX: 702-757-2219
John Krause
FAX: 602-379-3833

FROM: Alisa Wong
PHONE: 415-744-1842
FAX: 415-744-1873

Here is the second draft. An additional point which was not addressed during the conference call which we should discuss is the definition of "immediately" related to the petroleum contaminated soil removal. John has suggested that soil will need to be stockpile temporary until enough soil is excavated to constitute a full truck load. Is this reasonable for the Tribe? Thanks!

IAG Contract between BIA & BOR.

Duck Valley

STATEMENT OF WORK
SCOPE OF WORK TASKS FOR OWYHEE FACILITY WP

I. CLOSURE OF DISPOSAL WELL

TO BE DONE BY*:

(21) Identify all components (lines, drains)..... BIA

(22) Describe well & soil waste removal; sample contents...BIA/RECLAMATION

(23) From 22, if not RCRA waste, describe disposal.....BIA/RECLAMATION

(24) Sampling and Analysis Plan (for Disposal Well).....RECLAMATION

(25) Analyze Disp. Well for metals, VOC, Semi-VOC, TRPH....future work

(26) Describe permanent closure methods.....BIA

(27) ID any other injection wells on property.....BIA

16,000 GALLON TANK

(28) Test integrity of tank and pipeline, incl WP.....BIA

(29) Investigate remaining product in tank/lines, incl WP..BIA

(30) Contam. invest. in pipeline area, WP development.....BIA/RECLAMATION

(31) SAP additions if additional contaminants found.....BIA/RECLAMATION

SAMPLE DRINKING WATER WELLS

(32) SAP for Wells #1, #2, #3 (quarterly of 1,2; monthly 3)..RECLAMATION

(33) Plan to install monitoring well(s).....RECLAMATION

(34) All samples analyzed for metals, VOC, Semi-VOC, TRPH..future work

SITE CHARACTERIZATION

(35) Describe Wells #1, #2, #3 (constr., operation).....BIA/RECLAMATION

(36) Logs and installation specifics of wells.....BIA/RECLAMATION

(37) Characterize geology/hydrogeology.....RECLAMATION

(38) Background geology (Regional).....RECLAMATION

(39) Plan to Define soil/gr'water contam. plume boundaries..RECLAMATION

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 16

To Alisa Wong	From John Krause
Dept./Agency USEPA9-(W-6-2)	Phone # 602-379-6750
Fax # 415-744-1873	Fax # 3850

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

5

SITE REMEDIATION

(40) WP for cleanup and remediation.....future work

(41) Provide for storage or disposal of drums.....BIA

(42) Separate provisions for storage and removal.....BIA

(43) Removal & disposal of sludge a/o surface cont. .....BIA

(44) WP provides for remediation of soils/groundwater.....future work

(45) Remediate off-site contamination.....future work

NOTE: We also need to provide for investigation of closure of three underground tanks pulled at the Powerstation, Road Facility, and Jail Site in WP.

Additional documents and deliverables:
HASP: BIA wants the contractor selected to write own HASP
QAPP: RECLAMATION will do this
SOPs: RECLAMATION will do this
Review and concurrence of entire WP by RECLAMATION

(When dual responsibilities are delineated, BIA assumes lead role.)

The following information is a cost and time estimate of the above items to be supplied to BIA from Reclamation (TSC). Item numbers are identical to those given above. For additional information about individual work items, refer to the USEPA, Region IX, Docket No. UIC-EO-95-001.

WORK ITEM	PERFORMED BY	RECLAMATION STAFF DAY ESTIMATE[1]	COST	
PHASE I (WORK PLAN PREPARATION):				
CLOSURE OF DISPOSAL WELL:				
Review of WP, incl BIA sections:		0.25 II, 1.5 III	1066	
21	BIA	NA	0	
22	BIA/RECLAMATION	1 II	520	
23	BIA/RECLAMATION	(included in 22)	0	
24	RECLAMATION[2]	5 II	2600	
25	(contract work)	NA	0	
26	BIA	NA	0	
27	BIA	NA	0	(4186)
16,000 GALLON TANK				
Review of WP, incl BIA sections:		0.25 II, 1.5 III	1066	
28	BIA	NA	0	
29	BIA	NA	0	
30	BIA/RECLAMATION[2]	0.5 II	260	
31	BIA/RECLAMATION	0.25 II	130	(1456)
SAMPLE DRINKING WATER WELLS				
Review of WP, incl BIA sections:		0.25 II, 1.5 III	1066	
32	RECLAMATION[2]	2 II	1040	
33	RECLAMATION[2]	2 II	1040	
34	(contract work)	NA	0	(3146)
PHASE II (SITE CHARACTERIZATION; TO BE COMPLETED AT LATER DATE)[3]:				
SITE CHARACTERIZATION				
Review of WP:		2.5 III	1560	
35	BIA/RECLAMATION	1 II	520	
36	BIA/RECLAMATION	(included in 35)	0	
37	RECLAMATION (generalizations)	3 II	1560	

38	RECLAMATION	1 II		520	
39	RECLAMATION	3 II		1560	(5720)
PHASE III (SITE REMEDIATION) TO BE COMPLETED AT LATER DATE)[4]:					
SITE REMEDIATION					
Review of WP, incl BIA sections:		0.25 II,	1 III	754	
40	BIA (generalizations)	NA		0	
41	BIA	NA		0	
42	BIA	NA		0	
43	BIA	NA		0	
44	(future work)	NA		0	
45	(future work)	NA		0	(754)
SUPPLEMENTARY ITEMS:					
A. INCLUSION OF 3 PULLED USTs IN WP:		0.25 II,	0.5 III	442	
B. HASP	(provided by contractor)	NA		0	
C. QAPP	RECLAMATION	10 III		6240	
D. SOPs	RECLAMATION	4 II,	0.5 III	2392	
E. SITE VISIT & ESTIMATES		3 II,	1 III	2184	
-Non labor (per diem)				911	
F. REPRESENTATION DURING EPA REVIEW		2 II		1040	
-Non labor (fare/PD)				900	
G. RESPONSE TO EPA COMMENTS		2 II,	1 III	1664	
H. REPRESENTATION @ CONTRACTOR REVIEW		2 II + per diem		1951	
I. SECRETARIAL SUPPORT		2 I		816	
J. WP PUBLICATION		To be done by BIA		0	
(18540)					
(33802) K. 10% CONTINGENCY				3380	
			TOTAL:	37,200	

TOTAL STAFF DAYS: I = 2 II = 33 III = 21.

[1] I=SD cost of $51/hr (GS 1-10); II=SD cost of $65/hr (GS 11-12); III=SD cost of $78/hr (GS 13+), based on FY95 costs.
[2] Sampling and Analysis Plans do not include SOPs (see item D).
[3] Includes time to develop methods to determine Site Characterization, not site characterization activities, which are to be completed by a contractor.
[4] Remediation techniques for soil and groundwater will be developed by BIA and/or a contractor after Site Characterization has been completed.

FAX COVER SHEET

Environmental Research Chemistry Laboratory, D-8240
U.S. Bureau of Reclamation - Technical Service Center
PO Box 25007, Denver CO 80225-0007
Margaret Lake, Laboratory Manager, 303-236-4290 x256
Douglas Craft, QC Officer, 303-236-4290 x255
FAX: 303-236-4383

DATE: 10·16·96

FROM: Mary Goddard PHONE: (303) 236·4290 x265

TO: John Krause PHONE: (602) 379·6750

FAX NUMBER: (602) 379·3833

MESSAGE: John —
Here are some "canned" responses to the missing ① Data Mgt. Info.
② Info on audits/oversight & reports
Also, some info on DNAPL...
You'll want to adapt these pages to suit the Duck Valley Project
Talk to you tomorrow!
Mary

Section No. 2.11
Revision No: 0.0 /0
Date: October 3 1995
Page 1 of 3

2.11 PERFORMANCE AND SYSTEM AUDITS

2.11.1 System Audits

System audits consist of inspections of records, QC data, calibrations, and conformance to SOP's. System audits will be performed periodically on field, laboratory, and office operations.

Each major investigation type may be the subject of at least one system audit. Audits will be performed as early in the investigation as practicable. Audits will be performed by Reclamation Quality Assurance Manager (QAM) or his/her delegate.

The system audit topic examples are summarized as follows:

1. Field Operations - the QAM will periodically:
   a. Check field notebooks, logsheets, tracking forms, and report any deficiencies
   b. Check FSP implementation.
2. Laboratory Operations - the QAM will periodically check(based on contractual agreement between Reclamation and the lab):
   a. Parameter and/or laboratory notebooks
   b. Instrument log books
   c. Sample log-in, tracking, dispensing, and labeling for analysis
   d. Updating of QC criteria for spike recoveries, calibration records

In addition, the QAM will monitor analyses to ensure complete adherence to approved analytical methods.

3. Office Operations - The QAM will periodically check:
   a. Data Traceability
   b. Data reduction and transfer processes

c. Data review

d. Completion of statistical and quality indicator calculations

e. Validation, qualification, and useability documentation

f. Data base operations

g. Status of corrective actions.

4. Final Reports - The QAM will review all final reports and deliverables to ensure compliance with the DDC Work Plan requirements for OU-2.

System audits may also assess the following:

- A review of the organization and responsibilities to determine whether the QA program is operational,
- A check of whether written procedures are controlled, available, and being followed,
- A check of the steps that have been followed in the traceability of samples and data,
- A validation that the appropriate QC checks are being made and records of these checks are maintained,
- A determination of whether specified equipment is available, calibrated, and in proper working order,
- A review of project personnel training and documentation,
- An assurance that record-keeping procedures are operational and that notebooks, logsheets, chain of custody sheets, labels and [illegible] are properly prepared and maintained,
- A verification that the appropriate chain of command is followed in responding to variances and implementing corrective actions.

Following completion of an audit, the auditor(s) will prepare and submit an audit report to all parties involved. The report shall include:

- Date(s) of the audit
- Identification of audit participants
- Identification of activities audited
- Audit results
- Corrective action items
- Due date for corrective actions
- Means of audit response

2.11.2 Performance Audits

Performance audits will include evaluation and analysis of check samples. A performance evaluation sample for inorganic compounds from the EPA is analyzed periodically along with the regular samples. A program to evaluate organic samples from the EPA will begin prior to the initiation of EPA field investigations. If a laboratory has recently participated in a performance evaluation study, the results will be used to provide information as to the laboratory's historical performance.

2.11.3 EPA Required Laboratory Certifications

The analytical methods are certified under the EPA CLP Program and included in the appropriate RAP and CLP (or CLP-like) SOW. The laboratory analyses for this program were chosen by the EPA an Department of Health Services (DHS).

2.11.4 Readiness Reviews

Immediately prior to beginning each type of field investigation, a readiness review will be conducted by a team consisting of the TL, QAM, Lead Investigator, and appropriate team members and support personnel. The objective of the readiness review will be to assess the readiness of the investigation team to begin field work with DQO's QA/QC procedures, and documents in mind (and hand). A checklist of prerequisite issues such as necessary equipment, controlled documents, necessary training, assignments, spare parts, field arrangements, etc., will be prepared by the lead investigator. The team will review checklist

items and resolve any deficiencies and weaknesses. The Lead Investigator will prepare a summary of each readiness review; indicate successful resolution of any issues; and submit copies to the TL and QA Managers prior to commencement of field work.

3.1.2 Data Sources

Large volumes and a variety of data will be generated by Reclamation and its subcontractors in the course of conducting the OU-2 investigations at RGTC. Typical sources of data that will be collected are (but not limited to):

- Analytical results from Monitoring Well sampling
- Geologic field investigations
- Hydrologic field investigations
- Surface soil, subsurface soil, and soil gas sampling
- Analytical results from groundwater, soil, and soil gas
- Sampling and analysis of surface water seeps
- Quality assurance/quality control of sampling and analytical results

In addition, various background data including both historical and current aerial photography, results from previous investigations, regional water quality data, meteorological data, regional soils, geologic data, and Geographic Information System files covering the area will be utilized.

3.1.3 Data Collection

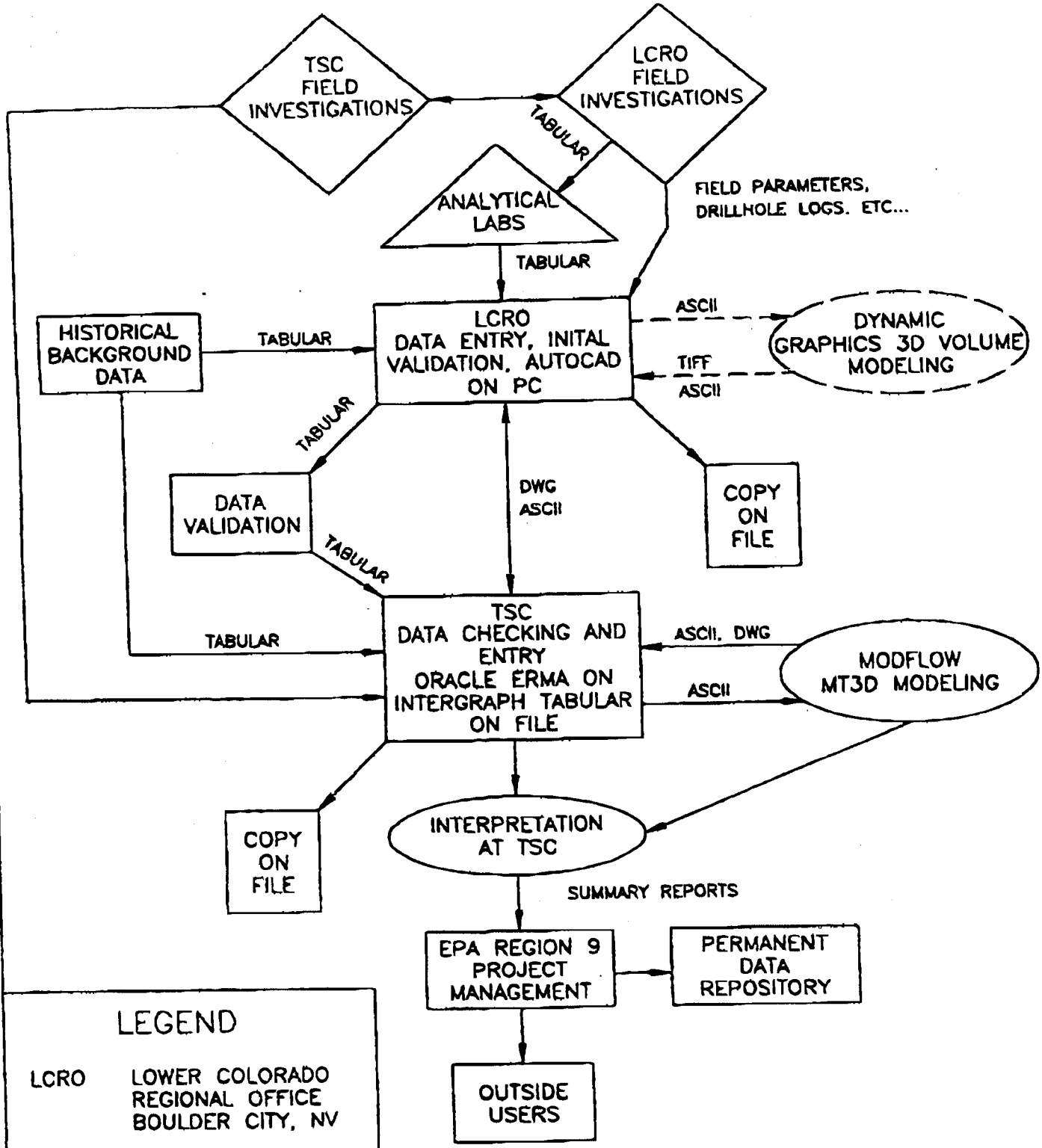
Data will be collected in the field as groundwater samples, drill or cone penetrometer logs, etc... as described in detail in the FSP (Section 4.4). Discrete sample identifiers for all samples collected at RGTC OU-2 will be used as described in Section 3.4.2. Project data from the site investigations are derived from two distinct sources: field and laboratory. Field data sources and the system for field data management to the office are described in the following sections. Laboratory data management procedures are discussed in greater detail in the QAPP and associated documents (e.g., individual Laboratory QA Plans) provided by the contracted laboratories to Reclamation.

3.2 DATA MANAGEMENT FLOW CHART

Since various Reclamation Offices will be involved in both the collection and analysis of data, and several outside analytical labs and/or subcontractors will also be involved in the development process of data, it will be essential that the flow (transmission), character (validity), and the integrity of all data associated with OU-2 be clarified at the onset of the project. **Figure 3.2-1** represents Reclamation's conceptual flow and location of data during the process of data collection, data validation, and also interpretation that will be used for OU-2. This data management flow chart does not imply that additional sources of data may not exist or that additional data flow paths, such as interpreted data being provided from the TSC to the Regional Office, may not occur. In the accompanying flow chart, field data collection activities are enclosed in diamonds; activities that occur at the LCRO and TSC that involve data checking, prevalidation, and data entry are enclosed in rectangles; activities that involve analysis, modeling and/or product generation derived from field and analytical data are enclosed in ellipses; analytical laboratory services are enclosed in the triangle; and, squares represent data (file) repositories. Flow or transmission of data is represented with arrows where the primary form of the data is indicated by the associated text (i.e., ASCII files, database files, DWG files, etc.).

In general, either TSC or LCRO will conduct field activities according to procedures detailed in the FSP. Data generated by TSC personnel will be checked and validated by a data validation team (see Section 3.7) in Denver and entered into the Oracle database. LCRO field data will be similarly checked by a validation team; but, analytical data will be prevalidated in the LCRO. However all data entry into the Oracle database will be performed at the TSC. Analytical laboratory data will be checked-in and prevalidated through the LCRO, copies made and transmitted to TSC for pre-entry into a database; simultaneously, the data will go through a formal third party data validation process, then the identified problems will go back through LCRO for correction before final data are entered into Oracle at the TSC. The database will be maintained by the DM for integrity purposes, and data retrieval will be approved by the DM. All data submissions which come after data collection, that is, data from analyses and/or interpretation procedures, will go back through the DM prior to entry into the Oracle database. This data checking and flow scheme for all data which gets entered into the database will ensure data integrity throughout the project.

DATA MANAGEMENT FLOWCHART FOR RGTC OU-2



DATA MANAGEMENT PLAN
FIGURE 3.2-1

Section No. 3.7
Revision No: 0.0/D
Date: October 3, 1995
Page 1 of 1

3.7 PROJECT FILES

Original paper copies of all data generated by field and laboratory operations, and related documents (e.g., transmittal letters, progress and final reports, laboratory results, daily report forms and field forms, maps and drawings) will be stored in the project files maintained at Reclamation's TSC. The Lower Colorado Regional Office will also maintain file copies of raw analytical data and other field data collection forms and log books associated with their OU-2 activities. Access to the project file and database will be limited to personnel on a need-to-use basis. Original copies of necessary project documents will be filed by the Data Manager (DM) or his/her designee.

3.9 DATABASE

Data that are entered into the GIS/CADD database must be accurate and complete so that end users of the database are confident that the data has been verified and validated prior to use. Due to the large volume of data collected during field investigations at the Site, there is a possibility of error or inconsistencies in data transmission and/or entry. The appropriate QA/QC objectives presented in this DMP will be met in order to check and keep errors to a minimum. The occurrence and use of multiple versions of a databases will be minimized to reduce the possibility of any personnel working with old outdated versions or non-validated entries in the database. The data entry, verification, and validation system presented herein will be implemented by Reclamation and all subcontractors to reduce and correct the occurrence of errors in data entry and inconsistencies in the database.

3.9.1 Data Base Schema Design

Intergraph's Environmental Resource Management (ERMA) relational database (Oracle) will be utilized and necessary modifications made to incorporate all relevant data, subdivided into appropriate tables, with relevant fields and individual records identified by unique primary keys that allow linkage and queries across tables. Currently, all historical site data have been entered in tables containing information on soil and groundwater sampling results, wellhead parameters, and well characteristics. These tables were established in Dbase and populated with the existing data. Similar Oracle database tables will be utilized in the TSC. The tables established in the ERMA database schema will be employed for final use in the Environmental Modeling and Remediation System on Intergraph.

Appendices A and B define the schema and table use within the Intergraph system. They are presented herein for clarity and ease of reference. They represent only a portion of the Intergraph documentation, however, these two appendices are the most applicable for the DMP.

3.9.2 Database Product Generation

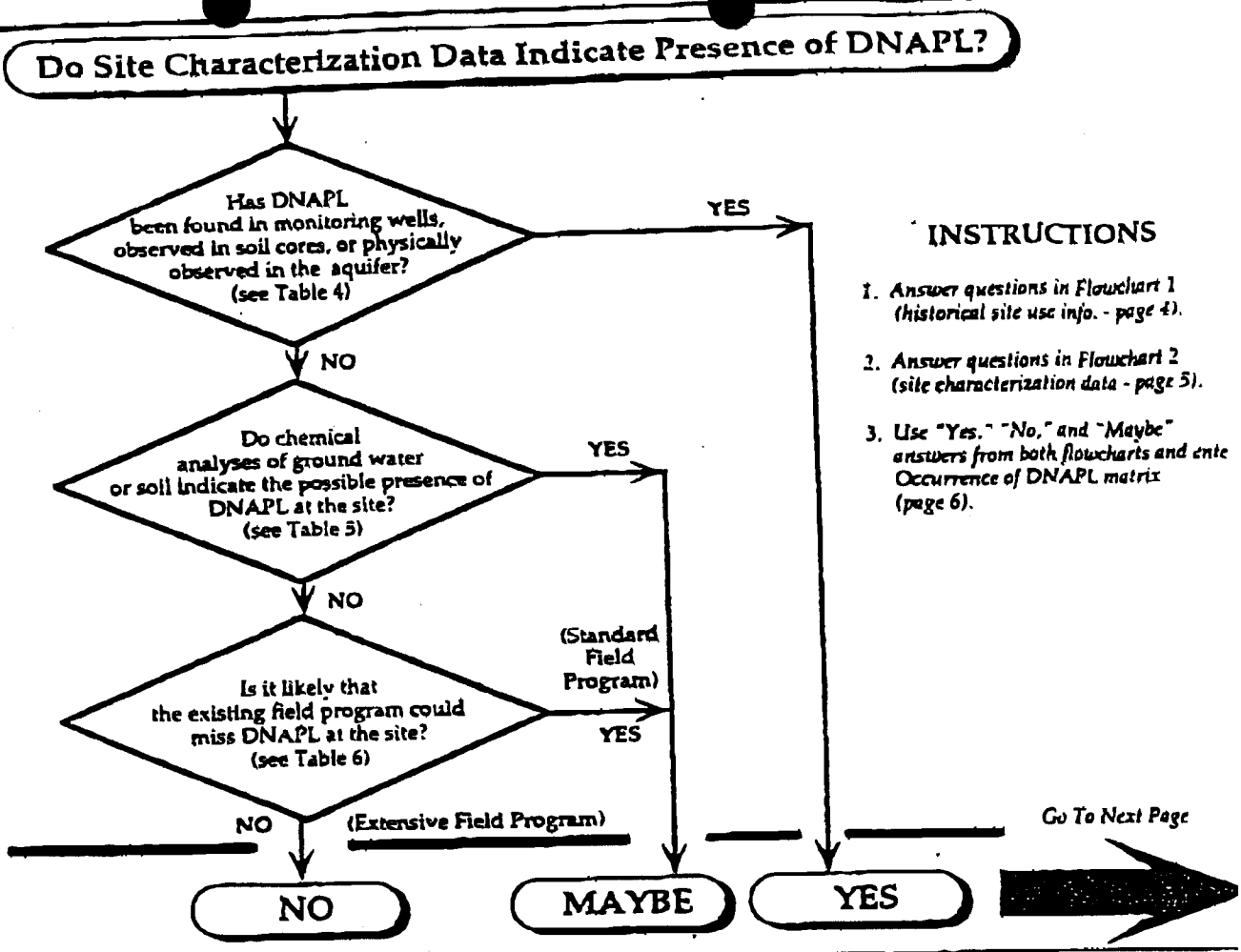
It is anticipated that a variety of cartographic, graphical, and tabular products will be generated as a result of the investigations and data collection activities at RGTC. Site plans, stratigraphic cross sections, engineering design drawings, groundwater surface contours, and digital elevation models of the site will be generated from the validated database. Contaminant transport modeling computer runs, computer control files, three dimensional volume models of the extent of contaminant plumes, the site stratigraphy, and the presence and extent of groundwater aquifers will be among the more specialized interpretive products generated from the GIS/CADD database developed for the RI/FS. To the extent feasible, all cartographic products will use a common coordinate system, will be systematically numbered, and will conform to Reclamation's design and national map accuracy standards. Source data and the date of all products will be maintained as part of the database in a separate table. Engineering drawings will be numbered according to applicable Reclamation

standards. The intent is to allow the end users of the database to ascertain how the data were been manipulated, when, and by whom.

3.9.3 Database Access

Access to all RGTC project files associated with the site investigations will be limited to authorized project staff for use within the field and Reclamation offices. The Data Manager will secure all filing cabinets, computer directories, and map files at the end of each working day.

Occurrence of DNAPL - Decision Chart 2



INSTRUCTIONS

1. *Answer questions in Flowchart 1 (historical site use info. - page 4).*
2. *Answer questions in Flowchart 2 (site characterization data - page 5).*
3. *Use "Yes," "No," and "Maybe" answers from both flowcharts and enter Occurrence of DNAPL matrix (page 6).*

TABLE 4

Methods to confirm DNAPL in wells:

- NAPL/water interface probes that signal a change in conductivity of the borehole fluid
- Weighted cotton string lowered down well
- Pumping and inspecting recovered fluid
- Transparent bottom-loading bailers
- Mechanical discrete-depth samplers.

In general, the depth of DNAPL accumulation does not provide quantitative information regarding the amount of DNAPL present (24).

Methods to confirm DNAPL in soil samples:

Visual examination of cores or cuttings may not be effective for confirming the presence of DNAPL except in cases of gross DNAPL contamination. Methods for enhancing visual inspection of soil samples for DNAPL include:

- Shaking soil samples in a jar with water to separate the DNAPL from the soil (14).
- Performing a paint filter test, in which soil is placed in a filter funnel, water is added, and the filter is examined for separate phases (20).

TABLE 5

Conditions that indicate potential for DNAPL at site based on laboratory data:

Condition 1:
Concentrations of DNAPL-related chemicals (see pg. 3) in ground water are > 1% of pure phase solubility or effective solubility, (defined in Worksheet 1, pg. 7) (25).

Condition 2:
Concentrations of DNAPL-related chemicals on soils are > 10,000 mg/kg (equal to 1% of soil mass) (6).

Condition 3:
Concentrations of DNAPL-related chemicals in ground water calculated from water/soil partitioning relationships and soil samples are > pure phase solubility or effective solubility(see Worksheet 2, pg. 7).

Condition 4:
Concentrations of DNAPL-related chemicals in ground water increase with depth or appear in anomalous upgradient/across gradient locations (25).

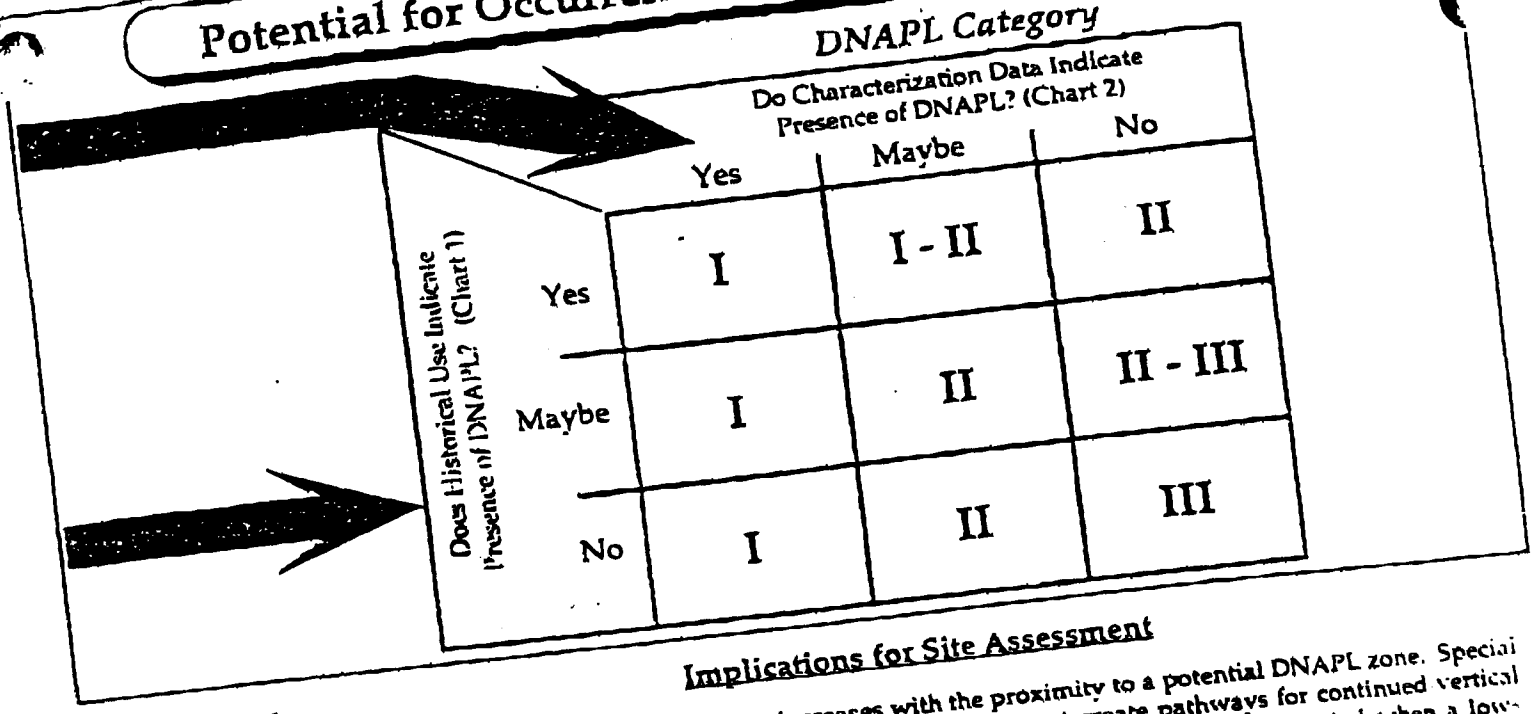
TABLE 6

Characteristics of extensive field programs that can help indicate the presence or absence of DNAPL (if several are present, select "NO"):

- Numerous monitoring wells, with wells screened in topographic lows on the surface of fine-grained, relatively impermeable units.
- Multi-level sampling capability.
- Numerous organic chemical analys of soil samples at different depths using GC or GC/MS methods.
- Well-defined site stratigraphy, usin numerous soil borings, a cone penetrometer survey, or geophysic
- Data from pilot tests or "early actio projects that indicate the site responds as predicted by conventional solute transport relationships, rather than respondi as if additional sources of dissolve contaminants are present in the aquifer (11, 25).

Note: This procedure is designed primarily for hydrogeologic settings comprised of gravel, sand, silt, or clay and may not be be applicable to karst or fractured rock settings.

Potential for Occurrence of DNAPL at Superfund Sites



Implications for Site Assessment

Category

I Confirmed or high potential for DNAPL at site.

- The risk of spreading contaminants increases with the proximity to a potential DNAPL zone. Special precautions should be taken to ensure that drilling does not create pathways for continued vertical migration of free-phase DNAPLs. In DNAPL zones, drilling should be suspended when a low-permeability unit or DNAPL is first encountered. Wells should be installed with short screens (≤ 10 feet). If required, deeper drilling through known DNAPL zones should be conducted only by using double or triple-cased wells to prevent downward migration of DNAPL. As some DNAPLs can penetrate fractures as narrow as 10 microns, special care must be taken during all grouting, cementing, and well sealing activities conducted in DNAPL zones.
- In some hydrogeologic settings, such as fractured crystalline rock, it is impossible to drill through DNAPL with existing technology without causing vertical migration of the DNAPL down the borehole, even when double or triple casing is employed (2).
- The subsurface DNAPL distribution is difficult to delineate accurately at some sites. DNAPL migrates preferentially through selected pathways (fractures, sand layers, etc.) and is affected by small-scale changes in the stratigraphy of an aquifer. Therefore, the ultimate path taken by DNAPL can be very difficult to characterize and predict.
- In most cases, fine-grained aquitards (such as clay or silt units) should be assumed to permit downward migration of DNAPL through fractures unless proven otherwise in the field. At some sites it can be exceptionally difficult to prove otherwise even with intensive site investigations (2).
- Drilling in areas known to be DNAPL-free should be performed before drilling in DNAPL zones in order to form a reliable conceptual model of site hydrogeology, stratigraphy, and potential DNAPL pathways. In areas where it is difficult to form a reliable conceptual model, an "outside-in" strategy may be appropriate: drilling in DNAPL zones is avoided or minimized in favor of delineating the outside dissolved-phase plume (2). Many fractured rock settings may require this approach to avoid opening further pathways for DNAPL migration during site assessment.

II Moderate potential for DNAPL at site.

- Due to the potential risk for exacerbating ground-water contamination problems during drilling through DNAPL zones, the precautions described for Category I should be considered during site assessment. Further work should focus on determining if the site is a "DNAPL site."

III Low potential for DNAPL at site.

- DNAPL is not likely to be a problem during site characterization, and special DNAPL precautions are probably not needed. Floating free-phase organics (LNAPLs), sorption, and other factors can complicate site assessment and remediation activities, however.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

October 8, 1996

MEMORANDUM

Subject: Duck Valley Work Plan Review

To: John Krause, BIA FAX: (602)379-3833
Jeff Baysinger, BOR FAX: (303) 236-4711

From: Alisa Wong, EPA

Enclosed are the comments on the Bureau of Indian Affairs Road Maintenance Shop Workplan. Comments, which are page numbered 1-17 on the attached document, were submitted by the Environmental Protection Agency, Quality Assurance Management Section (QAMS).

In this document, QAMS refers to the Sampling and Analysis Plan dated September 15, 1995 as the "FSP". The most recent version of the Workplan dated July 30, 1996 is referred to as the Field Workplan, "FWP". I've gone through and addressed as many of the comments as I could:

Major Concerns

Comment 4C Sampling around the heating fuel pipeline are addressed in the July 30, 1996 FWP in section 5.3. The section on monitoring wells has been removed from the FWP. However, BIA may want to embellish this section to assure that all QAMS concerns are addressed.

Other Concerns

Comment 4B Can be ignored. Drawings #1 and #2 have been submitted to EPA by the BIA.

Comment 4L Section 3.10 was in the September 15, 1995 FSP, this paragraph has been taken out of the July 30, 1996 FWP. There are no existing monitoring wells which water levels can be taken. Water levels will be taken from the drinking water wells.

Comments 10A, 10B, and 10C These comments still need be addressed, but there is some confusion about Appendix B. The Appendix B, which the comments refer to, is located in the September 15, 1995 Sampling and Analysis Plan as Appendix B. Appendix B contain the Standard Operating Procedures for several of the procedures which are required by the Workplan. The July 30, 1996 FWP does not have any of these Standard Operating

Procedures included as support documents. Therefore, SOPs need to be incorporated into the FWP as an addition appendix.

Also it needs to be clarified that Appendix B in the July 30, 1996 FWP (Geophysical Logging), has not been done yet. This task will be contracted out and the work is not part of the Workplan, but the information collected will be incorporated into the Workplan.

P 1.9 on Workplan

"Additional Comments Noted During Review"

Comment 4 Scheduling of sample analyzes to be done at the EPA Region 9 Lab will be coordinated by John Krause, Alisa Wong (UIC Section), QAMS staff, and EPA Regional Lab Staff. EPA Regional Lab space has already been reserved. Alisa Wong will notify the EPA Region 9 Lab at least 6 weeks prior to the time when the first sample will be shipped so laboratory time can be reserved.

#5 currently being done 1.3

One additional requirement for approval of the Workplan is the inclusion of a schedule of activities that will occur and be completed. The schedule should detail all the tasks in FWP (Phase I) and also include some estimated task completion dates for the other phases of the project.

Comment 3 in the Main Concerns section and Comments 4G, 4I, and 8A in the Other Concerns section deal with Standard Operating Procedures or Client Request Forms. Is it possible to get some standard language from the Bureau of Reclamation to address these comments?

If you have any questions, please call me at (415)744-1842. If we need to clarify any of the comments, I can set up a meeting with Dave Taylor of the QAM section.

c:\enforce\duckval\100796.let

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

October 4, 1996

MEMORANDUM

SUBJECT: Bureau of Indian Affairs Eastern Nevada Agency, Roads Shop Facility Field Work Plan for the Duck Valley Indian Reservation, Shoshone-Paiute Indian Tribes, Owyhee, Nevada, (EPA QA Program Document Control Number [DCN] WATR106S95VSF2)

FROM: David Taylor, Ph.D., Chemist
Quality Assurance Program, P-3-2

THROUGH: Vance S. Fong, P.E., Chief
Quality Assurance Program, P-3-2

TO: Alisa Wong, Project Manager
Drinking Water Compliance Section, W-6-2

Recd 10.07.96

A draft field sampling plan (FSP), prepared by the Bureau of Reclamation (Denver, Colorado) for the Bureau of Indian Affairs (Phoenix, Arizona), dated September, 1995, was previously reviewed by the Environmental Protection Agency (EPA). Based on the review comments, revisions were made to the FSP. The revised field work plan (FWP) consists of a Field Workplan (dated July 30, 1996), a Background and Study Rationale (dated July 1996), and a Quality Assurance Project Plan (QAPP). The FWP was reviewed to ensure all previous comments in the October 24, 1995 QA Program Memorandum were addressed, and to identify any new issues. The review was based on guidance provided in "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5), "Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects" (9QA-06-93), and "Guidance for the Data Quality Objectives Process" (EPA QA/G-4).

Most of the concerns identified in the original review have been addressed in the revised FWP. However, some elements still need to be addressed, such as identification and location of quality control samples (Major Comment 4), reference to a Health and Safety Plan (Major Comment 5), sampling methods and procedures (in particular NAPLs), and inclusion of site drawings and figures. Some comments could not be addressed in this review because the information was not provided (e.g., Appendix B).

Ms. Alisa Wong
October 4, 1996

The revised FWP can not be approved by the Quality Assurance Program until the remaining concerns are addressed.

Throughout this memorandum comments included in the EPA review of the September 1995 FSP are presented in bold type, and evaluations of the responses to comments appear in normal type.

Major Concerns:

1. [General] **The FSP does not provide the rationale for the proposed sampling and monitoring activities. The FSP should describe the rationale for sample locations and number of samples. This includes the sampling method used, and a discussion of the rationale for each sampling point, the total number of sampling points, and any statistical approach used to select these points. The FSP should discuss the rationale for the analytical parameters in relation to the site history and the objectives of the FSP. Relevant action levels should be discussed. The rationale for the use of any field analysis instrumentation should also be provided.**

   This comment has been partially addressed in the revised FWP. Background information is provided in sections one through three of the FWP (July, 1996). This information includes background and historical sampling events, thus setting the background for the analytical parameters chosen and the objectives of the FWP.

   In general, Section 2.0 [Sampling Objectives, Locations, and Rationale] and Section 5 [Field Sampling] of the FWP [July 30, 1996] provide rationale for the proposed sampling and monitoring activities. This includes a list of the overall sampling locations, sampling points, sample numbers, and a rationale for the choice of sampling depths. However, the methods of sample collection are not provided.

2. [General] **The FSP does not include a narrative or tabular description of the proposed analytical plan, and specific reference is not made to the project quality assurance project plan (QAPP) for information on the analytical and laboratory quality control procedures for each chemical analysis. Information to be presented in the FSP should include: analytes; sample matrices; analytical procedures and quantitation limits; sample holding times; calibration procedures and criteria; preventive maintenance; internal quality control checks, control limits, and corrective action; data calculations and reporting units; and documentation and deliverables. Tables should also be**

provided which list analyses for each sample point and matrix. The tables should list container types, sample volumes, preservatives, special handling, analytical holding times for each parameter, and quality control (QC) samples (blanks, field duplicates, laboratory QC samples and splits).

Tables 5 and 6 of the FSP list some of the required information described above (sample matrix, sample designation number, general sample location, analytical method, container size, and preservatives). However, the tables do not contain other necessary analytical information such as analytical holding times, quantitation limits, QC sample information, etc.

This comment has been satisfactorily addressed. The QAPP has been included in this submission, and it along with Tables 5 [Sample Location List-Soil and Sediment] and 6 [Sample Location List-Water and Waste Product] of the FWP (July 30, 1996) provide the information required in the above comment. Tables 5 and 6 have not been revised; however, sufficient information is provided in the QAPP. It is suggested the QAPP be referenced in the FWP.

3. [General; Appendix B, SOPs] **The FSP does not describe field methods and procedures in sufficient detail. Although reference is made in several sections of the subject FSP to SOPs in Appendix B, only SOPs for a head space analysis procedure and for spontaneous potential borehole logging are included. Provisions for documenting sample locations (e.g., surveying locations) are not given for all sampling activities. Additionally, step-by-step procedures for collecting samples for each matrix (soil, surface water, and ground water) and each technique (backhoe, borings, hand augers, hand scoops) are not outlined in the FSP. If SOPs will be used for this project, as stated, then the relevant SOPs should be included in the FSP. The SOPs should be appropriate to the tasks proposed.**

The response to this comment could not be evaluated as Appendix B was not available for review.

4. **Quality Assurance/Quality Control (QA/QC) samples are only briefly described in the FSP. Groundwater background samples are mentioned in Section 2.0, Sampling Objectives, rinsate blank samples are mentioned in Section 9.4, Specific Decontamination Procedures, and duplicate and field blank samples are described in Appendix A, Head Space Analysis Procedure. However, the FSP does not adequately describe**

the field QA/QC program. The field QA/QC program should include, for each sample matrix (soil, surface water, and ground water) a listing (or table) of the number of blank, background, duplicate, and laboratory QC samples which will be collected. The QC sampling locations, the rationale for collecting QC samples at the specified locations, the frequency of QC sample collection, and a description of QC sample collection procedures should also be included in the FSP.

This comment has been partly addressed by the inclusion of the QAPP. Table 6.3-1 [Summary of Internal Quality Control Procedures] includes field and laboratory QC samples. However, Table 6.3-1 does not include background sample collection, and neither does Section 2 of the revised FWP. Table 6.3-1 states that 20% of samples will be collected as duplicates, while Table 4.0-1 states 1 in 20 (5%) samples collected will be a duplicate. Region 9 recommends that 10% of all field samples be duplicates. The QAPP should be revised to discuss background samples and to reconcile the tables. Field QA/QC Section

In addition, neither the QAPP nor the FWP includes rationale for QC sample location or collection procedures. This should be included in the FWP.

5. **The FSP references a contractor's health and safety plan. However, the FSP does not identify the contractor. Although the QA Program will not review the health and safety plan (HSP), a site HSP should be included in the FSP or properly referenced. Both the FSP and HSP should be available on site.**

This comment has not been addressed. Section 3.11 [Field Health and Safety Monitoring] of the July 30, 1996 FWP, states an as yet unidentified contractor will prepare a Health and Safety Plan, but no direct reference to a specific plan is made.

Other Concerns:

1. [Table of Contents] **The table of contents (TOC) section is not complete. The TOC should indicate the location of figures, tables and appendices.**

This comment has been adequately addressed. Figures, tables and appendices have been included in the table of contents.

2A. [Section 1.0, Introduction to the Field Sampling Plan] **Section 1.0 states "[t]he Sampling and Analysis Plan (FSP) consists of two parts: 1) Volume 1, the Field Sampling Plan (FSP) and, 2) Volume 2, the Quality Assurance Project Plan (QAPP)." Volume 2, the QAPP, was not included with the submitted FSP. The sampling plan is part of the overall quality assurance (QA) program for work at a given site and should be consistent with other QA documents developed for a program/site such as a QAPP. Since the QAPP was not included in the submission, it is not possible to ascertain whether the FSP is consistent with the QAPP.**

This comment has been satisfactorily addressed by including the QAPP. The QAPP is consistent with the FWP. It is suggested, however, that it be referenced in the FWP.

2B. **Section 1.0 states "[a] summary of previous evaluations (chemical analysis results) is included in Section 3 of the Work Plan, and is not repeated here." Although reference is made to the Work Plan, the FSP does not provide sufficient background information for the site for it to be a stand alone document. The FSP should provide a concise history of contamination at the site which discusses activities that resulted in contamination, including the extent of contamination and past and on-going site investigations. Note that the WP is also incomplete, with omissions of referenced appendices which include data from past investigations and site maps.**

This comment has been satisfactorily addressed. The July 1996, FWP provides sufficient background information. Sections 1.1 [Introduction], 2.0 [Site Background and Contamination Source Setting], and 3.0 [Initial Contaminant Evaluation], provide a concise history of contamination at the site and discuss activities that resulted in contamination, including the extent of contamination and past and on-going site investigations.

3A. [Section 2.0, Sampling Objectives] **Section 2.0 states that several analytical levels will be employed at the site (e.g., Level I, II, and III). However, the definitions for these levels are not provided. In addition, the rationale for the selection and use of these levels is not provided. Please refer to Comment No. 1 under Major Concerns.**

This comment has been adequately addressed in the QAPP. Section 1.4 [Specific Data Quality Objectives Goals] defines the five analytical levels. The FWP states that Level II will be used for on-site analysis, however, the QAPP does

not address the specifics of the analyses or the rationale for this choice.

3B. **Section 2.0 states "[s]amples will be collected by a Biased Method." Although this sampling method may be appropriate given site-specific conditions, no rationale is provided for the selection of this sampling method versus others (e.g., systematic grid, random, etc.). Please refer to Comment No. 1 under Major Concerns.**

The comment has not been addressed as no sampling methods have been included in the revised FWP.

4A. [Section 3.0, Field Activities and Tasks; Section 3.1, Contaminated Soil Excavation; Section 3.3, Soil Contaminant Sampling; Table 5; Section 3.4, Groundwater Contaminant Sampling; Section 3.5, Analytical Chemistry; Section 3.6, Drilling for Lithologic Characterization and Monitoring Wells; Section 3.7, Soils Logging; Section 3.9, Characterization of Existing Water Wells; Section 3.10, Water Well Monitoring] **Section 3.0 states "[a]ll PPE [personal protective equipment] will be in accordance with the Contractors' Health and Safety Plan." The name of the contractor is not provided in the FSP. In addition, the site-specific health and safety plan (HSP) should be included or clearly referenced. Please refer to Comment No. 5 under Major Concerns.**

This comment has not been adequately addressed. Please refer to the evaluation of response to Comment No. 5 under Major Concerns.

4B. **Section 3.1 states "[a]reas anticipated to be removed are shown on Drawing 1, as based on present data." Reference is also made to Drawing 1 in other sections of the subject FSP for sampling locations and other information. Drawing 1 could not be located in the FSP. The FSP does not contain a site map illustrating sampling locations and other pertinent information which hampers evaluation of the FSP and is inconsistent with EPA guidance requirements. Although a regional location map and topographic map showing the town of Owyhee, Nevada is included in the Work Plan, no site map is included. The FSP should contain a site map which shows all sampling points, known and potential contamination sources, directions of surface water and groundwater flow, site boundaries, on-site buildings, and any other relevant information.**

This comment has not been addressed. Drawing 1 is referenced in the revised FWP, but has not been included. Regional and topographic maps are included in the FWP (July, 1996), but do not provide all information recommended by EPA guidance requirements. It is suggested Drawing 1 and 2 (referenced later in the text) be included in the document.

4C. **Sections 3.3 and 3.4 state that soil and groundwater samples for on-site head space analysis will be collected as soils that are excavated by a backhoe along areas of anticipated contamination and also at selected depths in drill holes for the installation of monitoring well(s). It is unclear how specific sample locations will be selected or determined (e.g., what will be the rationale for selecting points). The FSP should describe the rationale for sample locations and number of samples. Please refer to Comment No. 1 under Major Concerns.**

The response to this comment can not be fully evaluated as Sections 3.3. and 3.4 of the revised FWP do not include information on sampling. However, please refer to the reply to Comment No. 1 under Major Comments above, for comments on sampling rationale.

4D. **Sections 3.3, 3.4 and 3.5 indicate that samples will be analyzed for TRPH (total recoverable petroleum hydrocarbons). The TRPH acronym generally refers to EPA Method 418.1, which measures fluorocarbon-113 extractable petroleum hydrocarbons using gravimetric or infrared analysis. Table 5 indicates analysis for a number of soil samples by Modified EPA Method 8015. The analyses performed by Modified 8015 should be referred to as total petroleum hydrocarbons (TPH) extractable (diesel) and/or purgeable (gasoline), e.g., TPH-E or TPH-P. The specific analyses to be performed should be clarified, including whether either extractable or purgeable TPH analysis is requested.**

This comment has been satisfactorily addressed in the revised FWP. Section 2 [Sampling Objectives, Locations, and Rationale], and Table 5 [Sampling List Location-Soil and Sediment] of the July 30, 1996 FWP include the analytical methods. The acronym TRPH has been replaced by TEPH (Total Extractable Petroleum Hydrocarbons).

4E. **Table 5 and the SOP for headspace analysis indicate that mercuric chloride will be used as the preservative for VOC (volatile organic compound) samples. It is recommended that hydrochloric acid be substituted for mercuric chloride as the preservative if possible. If hydrochloric acid is not**

suitable, this should be stated in the text and a rationale provided.

This comment has been adequately addressed, all water samples collected for VOCs are to be preserved with hydrochloric acid.

4F. **Table 5 specifies RCRA (Resource Conservation and Recovery Act) metals. A target analyte list containing the specific metals to be determined should be included.**

This comment has been satisfactorily addressed; a target analyte list of metals to be analyzed is included in Table 5.0-1 [Reporting Limits, Target Analyte List and Holding Times Requirements for Groundwater Samples] of the QAPP. It is suggested this be referenced in the FWP.

4G. **Section 3.5 states "[l]evel III soil and water samples collected during Work Plan activities will be sent to a qualified laboratory for QA/QC documented chemical analyses for volatile organics, semi-volatile organics, metals and TRPH." The laboratory is not identified and a laboratory QA plan is not provided or referenced to determine if the laboratory is qualified to perform the proposed analyses. Please refer to comment No. 2 under Major Concerns.**

This comment has been partially addressed. The analytical laboratory has been identified as the EPA Region 9 Laboratory. Client Request Forms (CRF) for total petroleum hydrocarbons and volatile organic compounds (VOCs) have been included; however, a CRF has not been included for TCLP analyses. Note that the ability of the Regional Laboratory to perform TCLP extractions is limited, so the number of samples selected for this analyses must be coordinated closely with the Region.

4H. **Section 3.6 states "[s]amples of the alluvium will be collected at various locations to be determined during the investigation and after consultation with EPA, Region IX. For estimating purposes, two monitoring wells may be completed at the site, each to range from 15 to 180 feet deep. The need for and actual locations and final depths will be determined in the field as more geologic data are received." These statements suggest that some of the proposed activities can not be accomplished without the acquisition of additional data or prior approval from EPA. It is unclear how decisions will be made in the field regarding these activities. It is recommended that these activities be proposed/described in greater detail in the**

FSP or else a separate FSP be prepared following completion of this "phase" of site activity.

This comment has been satisfactorily addressed. Section 3.7 [Water Monitoring] of the FWP (July 30, 1996) includes a well monitoring schedule (Table 3). This includes monitoring of well numbers 5 through 7, which are new wells (see Section 1.0, Purpose and Scope). The section states that water sampling and analyses will be performed on the wells, analytical results will be evaluated, and following consultation with the EPA, decisions will be made on whether to deem a well safe and close it, or to perform further sampling and analyses.

4I. **Section 3.7 references procedures for soil classification and sample collection activities to USBR methods (USBR 5005, 7000, and 7010) in Appendix B. These methods or SOPs are not included in Appendix B and the FSP does not describe these procedures in any detail. Please refer to comment No. 3 under Major Concerns.**

The response to this comment could not be evaluated as Appendix B was not available for review.

4J. **Section 3.9 states "[g]eophysical logging will consist of obtaining acoustic velocity, caliper, gamma ray, temperature, neutron, single-point resistance, spontaneous potential and conductivity logs." Although this suite of logs may be acceptable for determining lithology characteristics of the aquifer, no rationale for the selection of this log suite is provided. In some cases, a suite of logs this comprehensive may be unnecessary. In other cases, additional logs, such as a density log, may be warranted. Please refer to Comment No. 1 under Major Concerns.**

This comment has been satisfactorily addressed. Section 3.4 [Soils Logging] of the revised FWP (July 30, 1996) includes information on soils logging at the site. While it does not breakout the procedures to be used as outlined in the above comment, it states the Unified Soil Classification System will be used by a trained and experienced individual to achieve an accurate soil classification.

4K. **Section 3.9 also states that plastic for storing the well pump and pipe during geophysical logging may be reused at different water wells if results from an OVA (organic vapor analysis) scan are negative. To eliminate any possibility**

of cross-contamination, it is recommended that new plastic sheeting be used for each water well.

This specific comment has been satisfactorily addressed. Section 7.5 [Site Specific Decontamination Procedures] of the FWP (July 30, 1996) provides adequate information on decontamination procedures to be used at the site.

4L. **Section 3.10 states "[e]xisting monitoring wells are shown in Figure 1 and a schedule for monitoring water levels is shown in Table 3." Figure 1 could not be located in the FSP.**

This comment has not been addressed. As stated in the response to Other Concerns Comment No. 4B, the only Figure 1 available for review is a regional map of the area.

4M. **Section 3.10 states "[t]he location, and number, of monitoring wells chosen to be monitored will be determined in consultation with EPA, Region IX as additional data is received from the field." It is unclear why ground water monitoring activities are discussed in the subject FSP if monitoring activities are not to be planned/performed until after the proposed removal activities and consultation with EPA. It is recommended that these activities be proposed/described in a separate FSP following completion of this "phase" of site activity. Please refer to comment No. 3E under Other Concerns.**

This comment has been satisfactorily addressed. Please see the response to Other Concerns Comment No. 4H.

5. [Section 4.0, Sample Designation] **Section 4.0 describes how samples will be identified using a four-field designation system. However, this section does not indicate how QA/QC samples will be designated/labeled. It is recommended that the FSP describe how QA/QC samples will be labeled.**

This comment has not been adequately addressed. Table 4 [Sample Designation Field Abbreviations] of the FWP (July 30, 1996) summarizes sample identification, this includes the reference "QC = Quality Control Samples." However, "QC" does not indicate that such samples would be "blind" to a laboratory. It is suggested quality control samples be labelled differently.

duplicate background should go to lab blind

6. [Section 5.0, Sample Location and Frequency] **Section 5.0 describes sampling locations and frequency for the proposed soil, surface water, and ground water sampling activities.**

However, no rationale is provided for the locations and number of samples. For example, the selected depth intervals and horizontal grid spacing intervals are not explained. The rationale for the sampling program should be described. Please refer to comment No. 1 under Major Concerns.

This comment has been satisfactorily addressed in the revised FWP. Please see the response to the comment under Major Comment No. 1.

7A. [Section 6.0, Sample Handling and Analysis; Section 6.1, Data Collection in Field Log Book; Section 6.2, Chain of Custody] **Section 6.1 states "[d]ata needs for entries for each activity are also delineated in the appropriate section description of each task, as described earlier in this FSP." Data needs are described in the earlier sections, but the data to be recorded in the field log book for these activities is not discussed. The FSP should describe all of the entries that will be made to the field log book.**

This comment has been adequately addressed in the revised FWP. Section 7.2 [Site Recording] of the July 30, 1996 FWP summarizes the data and observations to be recorded, and the log and check-in sheets to be used on a daily basis at the site. More information is also provided in Section 2.1 [Field Log Book] of the QAPP.

7B. **Section 6.1 does not mention data sheets such as boring logs, excavation pit logs, or water-level data forms. Although it is conceivable that all data documentation could be entered into a field log book, it is not very practical. Most environmental investigations utilize data sheets for specific sampling and monitoring activities and include examples of these forms in the project QAPP or FSP. It is recommended that such data sheets be utilized in this project because of the broad scope of planned activities.**

This comment has been adequately addressed in the revised FWP. A well purge and stabilization form (Figure 2.5-1) has been included in the QAPP.

7C. **Section 6.2 states "[t]he chain of custody (COC) record (Figure 2, or equivalent) will be completed for each set of samples at the time of sampling." Figure 2 could not be located in the FSP. In addition, the FSP does not describe the entries that should be made to the chain-of-custody record. Although not required by EPA guidance, it is recommended that this information be provided in the FSP.**

It is also recommended that an example chain-of-custody record be included.

This comment has been satisfactorily addressed in the revised FWP, by the inclusion of the QAPP. Section 3.0 [Sample Custody] of the QAPP includes a listing of all elements to be included in a chain of custody form, and provides two example figures (Figures 3.0-1, Chain of Custody Record, and 3.0-2, Chain of Custody Record. It is suggested however, that this section of the QAPP be referenced in the FWP.

Figures 3.0-1 and 3.0-2 both have the same title, namely "Chain of Custody, Request for Analysis." It is suggested a slightly different legend be given to one.

7D. **Section 6.2 lists the information that will be included on sample labels. However, the site name/identification is not included in this list and the sample identification/designation system for the project does not include a field for the site name. It is recommended that the labeling procedures be modified to include site name/identification information on sample labels.**

This comment has been satisfactorily addressed in the revised FWP/QAPP. Section 2.11 [Sample Handling] of the QAPP includes a list of entries for sample labels. Figure 2.11-1 [Example Sample Label] illustrates a sample label which includes a field for the site name and sample identification. This section of the QAPP should be referenced in the FWP.

7E. **Section 6.2 states "[t]he ice chest will have a custody seal (Figure 3, or equivalent) affixed across the seam of the cover to represent that the cooler was not opened during shipment." Figure 3 could not be located in the FSP.**

This comment has been satisfactorily addressed in the FWP/QAPP. Section 2.11 [Sample Handling] of the QAPP includes similar verbiage to the above comment (7E), and it includes an example custody seal (Figure 2.11-2, Example Chain-of-Custody Seal). Reference to the QAPP sample custody should be made in the FWP.

7F. **Section 6.2 does not discuss laboratory chain-of-custody procedures. This information should be included in the FSP.**

This comment has been adequately addressed in the revised FWP and QAPP. Section 3.0 [Sample Custody] of the QAPP

includes the laboratory chain of custody procedures. This section of the QAPP should be referenced in the FWP.

8A. [Section 7.0, Sampling Equipment and Procedures; Section 7.7, Groundwater Level Measurements] **Section 7.0 describes, in general, soil and ground water sampling procedures for volatile organic compounds (head space), volatile organic compounds, semi-volatile organic compounds, metals, total recoverable petroleum hydrocarbons, physical parameters for soils, and surface water sampling. In each subsection, reference is made to an SOP in Appendix B. These methods or SOPs are not included in Appendix B and the FSP does not describe these procedures in any detail. Please refer to Comment No. 3 under Major Concerns.**

The response to this comment could not be evaluated as Appendix B was not available for review.

8B. **Section 7.7, which discusses water-level measurements, states "[t]he cable must be marked in at least one-foot intervals," and "[w]hen the point on the cable representing the depth to water is identified (from the permanent measurement point), a metal tape measure will be used to determine the exact footage by referencing the point on the cable to the nearest depth marker shown on the cable." Most cables on electronic water level meters are graduated to at least 0.10 feet and even to 0.05 feet. Therefore, it is recommended that the FSP require a cable marked in at least 0.10 foot intervals. This will eliminate the need for a metal tape.**

This comment has not been addressed in the revised FWP. In general, specific procedures have not been included in the revised FWP.

8C. **Since non-aqueous phase liquids (NAPLs) are primary contaminants as discussed in Section 3.6, provisions should be made for the detection and measurement of NAPLs during water-level measurement activities.**

This comment has not been adequately addressed. Reference is made to NAPLs as being "the primary contaminant of concern on the site" in Section 3.7 (Water Monitoring, FWP-July 30, 1996). Table 6 [Sample Location List - Water and Waste Product] includes the comment under well # 1, "Water surface (to be taken only if NAPL's are detected.)" In addition, a number of references to these contaminants (both dense and light NAPLs) are included in the July 1996 FWP.

More information should be included in the FWP such as method of NAPL detection and measurement.

9A. [Section 9.0, Site Mobilization and Demobilization; Section 9.3, General Decontamination Procedures; Section 9.3.4, Decontamination of Equipment Used to Collect Samples of Toxic or Hazardous Waste; Section 9.4 Specific Decontamination Procedures; Section 9.4.1, Borehole Geophysical Probes and Cable, Section 9.6, Investigation Waste Disposal] **Section 9.3.4 states "[e]quipment that is used to collect samples of hazardous materials or toxic wastes or materials from hazardous waste sites, or in-process waste streams shall be decontaminated before it is returned to the field. At a minimum, this decontamination procedure shall consist of washing with laboratory detergent and rinsing with tap water." EPA Region 9 recommends a decontamination sequence consisting of a detergent wash, rinse with tap water, solvent rinse (nitric acid or pesticide grade solvent depending on parameters of concern), and a deionized/distilled water and/or organic free water rinse.**

This comment has been satisfactorily addressed in Sections 7.4.4 [Decontamination of Equipment Used to Collect Samples of Toxic or Hazardous Waste] and 7.5 [Site Specific Decontamination Procedures] in the FWP (July 30, 1996.).

9B. **Section 9.4.1 states that logging probes will be wiped with solvent immediately after being brought out of the borehole, brushed to remove any particulate matter or surface film, and then rinsed with deionized water and allowed to air dry. It is unclear why this decontamination sequence uses a solvent wipe as a first step. Most decontamination procedures (including those presented later in this FSP for other equipment) proceed from a detergent wash and tap water rinse to a solvent rinse and final deionized water rinse. It is recommended that the rationale for the proposed decontamination sequence be further clarified.**

This comment has not been addressed in the revised FWP.

9C. **Section 9.6 states "[p]urged groundwater and rinsate water from monitoring will be ... NEED INPUT. CAN IT BE DUMPED?..." Ground water obtained through well purging may be a hazardous waste and should be properly disposed in accordance with EPA regulations. The decision as to whether materials are hazardous should be based on the results of sample analyses. The project leader or site manager should determine the appropriate handling approach upon designating**

the investigation-derived waste (IDW) as either RCRA hazardous or RCRA non-hazardous. (See U.S. EPA "Management of Investigation-Derived Wastes During Site Inspections" EPA/540/G-91-009, 1991.) Provisions should be included in the FSP for characterizing, storing, and properly disposing of IDW.

This comment has been satisfactorily addressed. Section 7.6 [Waste Disposal] of the July 30, 1996 FWP states that liquid and solid waste are collected in 55 gallon drums until determined as hazardous or not hazardous, by the contracting officer or a representative. The last "paragraph" consists of one sentence "Purged groundwater and rinsate water from monitoring will be not be required." This sentence should be deleted.

10A. [Appendix B - SOPs, The Head Space Analysis Procedure; Headspace Analysis by OVA 128 GC (gas chromatography), or Equivalent; Headspace Analysis by Photovac 10Splus GC, or Equivalent] **The Head Space Analysis Procedure states "[a]t pre-determined locations, as shown on Table xxx, a second set of two or three (see section 1) co-located specimens will be obtained from the bottom of the same soil core or trench sample." Table xxx could not be located in the SOP or FSP.**

The response to this comment could not be evaluated as Appendix B was not available for review.

10B. **Step 13 of OVA 128 GC and Step 20 of 10Splus GC state that a field blank and syringe blank should also be run if significant VOCs are indicated. The frequency of field blanks should be established in the QAPP and/or FSP, and is determined before sample collection activities begin. However, running additional syringe blanks when significant levels of VOCs are encountered is a good practice.**

The response to this comment could not be evaluated as Appendix B was not available for review.

10C. **Step 10 of the 10Splus GC states "[p]erform a three point calibration (IC) at the start of a testing session using the first three headspace standard, then perform an ICV with the fourth headspace standard to verify correct standard preparation and calibration prior to performing headspace analyses." The procedure does not indicate what kind of linearity is needed (e.g., .995 r^2), or indicate if a quadratic fit is satisfactory. In addition, the procedure does not indicate how much different the ICV quantitated**

amount can be from the IC. It is recommended that further clarification be provided in the procedure.

The response to this comment could not be evaluated as Appendix B was not available for review.

Additional Comments Noted During Review

1. [General Comment] In the revision of the FWP the original section numbering was not kept, which made it difficult to ascertain if all comments had been adequately addressed. In a number of cases sections were no longer included in the revised FWP, but were included in the QAPP, which was included for review. It is suggested both documents be available to field and analytical personnel for the duration of the project activities.

2. [FWP-July 30, 1996: Section 1, Purpose and Scope] It is stated that new wells will be installed for monitoring purposes, however, no information on the design and construction of the wells is included.

3. [FWP-July 30, 1996: Section 5.2, Samples of Contaminated Soils at Facility Yard] The opening sentence of this section states "One representative sample of soil collected in this area will be analyzed..." No discussion of what is meant by a representative sample is included, for example, a composite or discrete sample.

4. [Tables 5 and Sample Location Lists] Limited information on scheduling of samples, or total number of samples that will be sent to the Region 9 laboratory is provided. It is suggested that specific information on the total number of samples and required scheduling be included in Tables 5 and 6, so that the field schedule is consistent with the laboratory's schedule and workload.

5. [General] Page 22 of the July 30, 1996 FWP is missing.

6. The QAPP does not include the seven step data quality objectives (DQO) outlined in *Guidance for the Data Quality Objectives Process*, EPA QA/G-4. In addition, some omissions have been noted in the QAPP including the following:

   - Title and approval sheet
   - Distribution sheet
   - Organizational chart
   - Specific sampling procedures

- Specific data management information
- Specific information on audits/oversight and reports
- List of equipment used

Questions or comments regarding this review should be referred to David Taylor, EPA, at (415) 744-1497. Technical assistance for this review was provided by: Deirdre O'Leary, Environmental Services Assistance Team (ESAT) Contract No. 68D60005, Work Assignment (WA) No. 09-96-0-10, Technical Direction Form (TDF) No. 9610006.